The Builder.

VOL. LXXXII.—No. 3078. FEBRUARY 1, 1902.

ILLUSTRATIONS.

Rimini Cathedral: Lateral View ..... From Photograph.
Rimini Cathedral: Balustrade in front of Chapels, and part of Detail of Arches forming Entrance to two Chapels ..... From Photographs.
Rimini Cathedral: Various Details of Sculpture ..... From Photographs
Ciborium in San Dominico, Sienna ..... Drawn by Mr. W. Curtis Green.

Blocks in Text.

Sketches Illustrating Beyrout ..... Page 102
Greek Method of Drawing Curves ..... „ 103
Corners of Old Holland: The "East India" Tower, Enkhuizen .... Page 111
Corners of Old Holland: The Wharf Shipyard, Durgerdam ..... „ 109

CONTENTS.

Beyrout 101
Greek Method of Drawing Curves 103
Notes 104
Letter from Paris 105
A Day's Walk in Mid Kent 106
Bermondsey Electricity Works 107
The Architectural Association: Discussion Section 108
Competitions 108
Corners of Old Holland 108
An Architect's Duties 108
The Surveyors' Institution 110
Architectural Societies 110
The London County Council 111
Illustrations:—
Illustrations of Rimini Cathedral 112
Ciborium San Dominico, Sienna 112
Books:—John Leaning's "Building Specifications"; John A. Walbank's "Builder's Accounts"; "Lockwood's Builder's, Architect's, Contractor's and Engineer's Price Book for 1902"; T. Mellard Reade's "The Green Slates of the Lake District"; Charles H. Innes's "The Centrifugal Pump, Turbines, and Water Motors"; Sidney Barwise's "The Bacterical Purification of Sewage, being a Practical Account of the Various Modern Biological Methods of Purifying Sewage"; E. Bailey-Denton's "The Water Supply and Sewerage of Country Mansions and Estates"; F. Wallis Stoddart's "The Continuous Sewage Filter"; William S. Furneaux's "Elementary Practical Hygiene (Section I)"; A Barrister's "Every Man's Own Lawyer"; John Shiress Will's "Michael and Will on the Law Relating to Gas and Water"; William Bousfield's "The Law Relating to Factories and Workshops as Amended and Consolidated by the Factory and Workshops Act, 1901"; H. E. Hadley's "Practical Exercises in Magnetism and Electricity"; C. V. Drysdale's "Electric Wiring and Fitting"; G. W. de Tunzelmann's "Wireless Telegraphy"; Beatrix F. Cresswell's "Teignmouth"; J. E. Morris's "Surrey's Capital, Guildford and District"; Gordon Home's "Farnham and its Surroundings"; F. J. Snell's "Dulverton and District"; Stanley Martin's "A Glimpse of Cranbrook" 112
Fire Tests with Australian Hardwood Floors and Doors 113
Trade Catalogues 113
Applications under the London Building Act, 1894 114
Staircases in Public Buildings 115
Correspondence:—
Some Suggestions as to Competitions 116
The Architect's Use of Enamelled Tiles 116
Building Contracts 116
The Student's Column.—Drainage 5 116
General Building News 117
Foreign 118
Miscellaneous 118
Legal:—
A Plymouth Architect's Commission 119
Means of Escape in Case of Fire from a Factory 120
Recent Patents 120
Meetings 120
Some Recent Sales of Property 121
Prices Current of Materials 121
Tenders 123

Beyrout.

THE old-time semi-savage towns collected round the landing-places or "scale" of the Eastern Mediterranean shores are passing away. Turko-Arab barbarism is gradually melting before the influences of civilisation, and in the very midst of the Nearer East the excellent port built by French enterprise in 1895-1900 has raised Beyrout from a mere agglomeration of rich natives' houses (filled with women and slaves), the Consulates, and a few traders' stores, into the position of a thriving and important city. The Arab slums of former days are of course still very much in evidence, but the large European houses and business premises built round the port are encroaching on the adjoining filthy hovels and lanes, and the leaven of enterprise and commercial development is working wonderfully. Beyrout illustrates the strange fusion of Eastern and Western ideas which can only be found in full force in Turkey.

A most singular feature in the civilisation of Beyrout is the total absence of the civic organisation associated with such events in other lands. Certainly there is a "medglis," or town council, partly elected by suffrage of Ottoman subjects, Christian as well as Mohammedan. But such an organisation, in which all the foreign elements of the community, who represent the wealth and intelligence, are excluded, is naturally of very little value for practical municipal work. There is no regular civic corporation responsible for the public welfare, no Government commission is charged with improvements, and not even the element of any committee of influential inhabitants enters into the question. A city of 200,000 inhabitants manages to exist in a flourishing fashion with merely a nominal administration representative of the minority, and under the control of the innately corrupt Turkish Government.

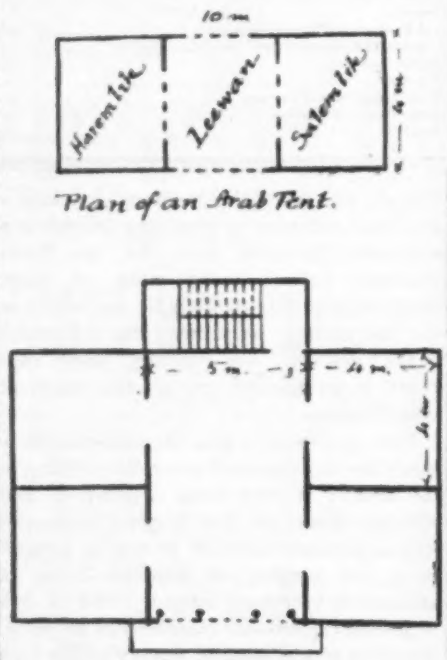
Everything in Beyrout naturally reflects that characteristically selfish mode of life which is inseparable from Mohammedan institutions. There is no conception of co-operation for mutual welfare, no public spirit, no union of common interests for a common good. Every man seizes and holds such property as he can come by in any way, and his one idea is always to surround such property with barriers of defence, on the outside of which any trifling display of his possessions is always of the most cautious and guarded kind. As a consequence this is a country where real public works are practically unknown, and anything in the shape of a monument or object of public utility—a mosque, a bridge, a drinking-fountain—is merely the result of individual caprice and desire for display. Such monuments are, of course, never repaired or re-erected when once they are decayed or destroyed. Roads may be said to hardly exist with the exception of the famous Damascus-Beyrout road, made and maintained by the French Diligence Co. since 1860. This company, afterwards merged into the railway company, still owns the road, but the older work is now no longer sustained as formerly, and the greater part of it has lapsed after the last few winters into a ruin. Under these circumstances, all the imposing modern buildings which are springing up in Beyrout and its suburbs have an old and anomalous effect to a European accustomed to the properly laid-out streets, well-made roads, &c., of a civilised town.

As an illustration of the shocking disregard for the welfare of the community displayed by the Turkish officials of such a town as Beyrout, a most terrible accident last year occurred in one of the quite European quarters of the city. A three-storied house, built a few years back, falling down, killed forty-seven persons. The property belonged to a Mohammedan speculative builder. As there is no real or effective control over the erection of such buildings in modern Turkey, and the "jerry builders" are now a good deal occupied in providing houses in a supposed European style for the Europeanised natives, many more of these disasters may unfortunately be looked for in the near future. At present the influences of the "evil eye" and "kismet" seem supposed to sufficiently explain the cause of such disasters.

The natives of Syria are comparatively poor; the small amount of wealth existing in the country is very fairly distributed, and although there are few beggars compared with a European district of similar proportions, the number of families living in affluence is very small indeed. This is due to several causes—the insecurity of property, simplicity of life, want of energy on the part of the natives, and, perhaps more than anything else, to the enervating influences of a warm climate, which has a deteriorating effect on humanity in all parts of the globe. At the same time it must be admitted that a certain amount of native enterprise is observable in Beyrout, fostered by the presence of the Corps of Foreign Consuls, who in the Levant occupy a quite different position from that of mere commercial agents, such as are found in other countries, for here they are viewed as protectors from Turkish officialism.

In Levantine countries the Jewish race is, perhaps, the most important factor in social development. Thanks to the numerous Jewish immigration societies founded in the seventies and eighties by English and other Protestant enthusiasts, the whole face of Palestine and some part of Syria has been changed. Instead of a sleepy, uncared-for province of the Turkish Empire, with a limited population of Arabic-speaking "felaheen" under the rule of a patriarchal Government, many of the officials of which were genuine Turks from Constantinople in former times, the country has now become a centre of colonial activity unlike that of any other part of the world. And this remarkable change has taken place since the introduction of the Jewish colonies at the time of the Mansion House Relief Fund. Now, in addition to

Fig 2.



Plan of an Arab Tent.

Type-plan of Syrian House.

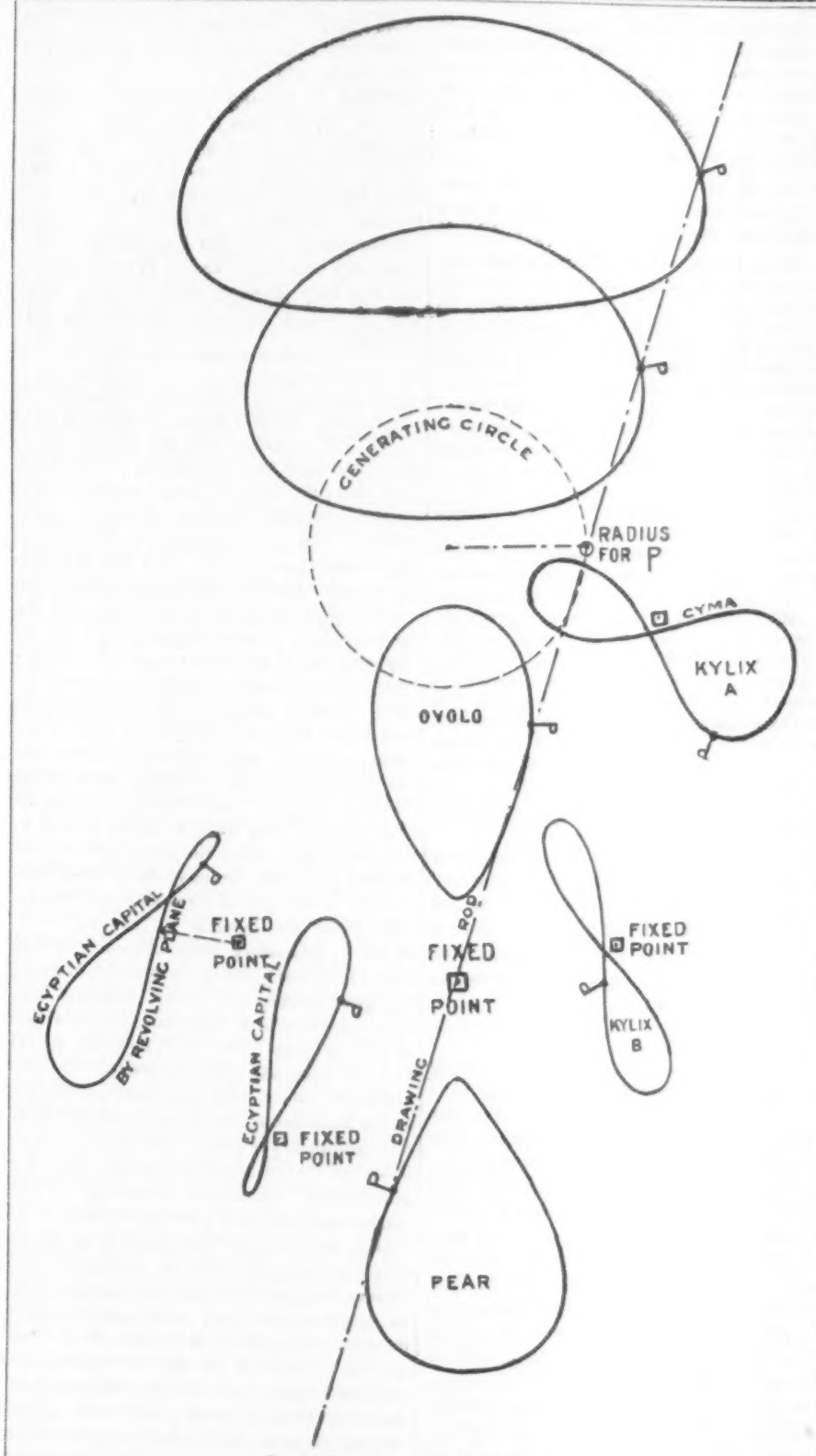
Fig. 1.

the Jews, there are flourishing settlements of Germans and Americans everywhere, and some evidences of Russian influence; but the most noticeable addition to the modern population of the country is, perhaps, the great and increasing influx of Mohammedan refugees from countries whence they are being ousted by Christians. The Jewish element in Beyrout is, as might be expected, greatly evidenced by the large new places of business belonging to Jewish traders with more or less European names. One of the largest and most imposing of these establishments is an enormous store for the sale of every conceivable article for household use or wearing apparel, resembling the famous "Fratelli Bocconi" shops of Italy or the "Magasins du Louvre." It stands on the quay of the new port, and although hardly to be criticised from an architectural point of view, its immense stone front, plate-glass windows, and Parisian appearance create a very astonishing effect on the mind of the traveller returning to Beyrout after the lapse of ten years.

Many of the enormous new villas built by bankers and traders in the suburbs are remarkable for certain peculiarities of structure. Like most Levantine houses, they are planned with the object of obtaining the largest possible rooms, and not with any apparent conception of the necessity for scientific or hygienic arrangement in a house. They are always built on one model, that of the Arab Bedaween tent (fig. 1)—a large central chamber which serves for entrance hall, reception and dining room, and is also the only means of communication with the bedrooms which open out on either side. In these houses passages are unknown, and the staircase to the upper floor seems to prove so much a puzzle to the builders that it is generally left outside the building; in fact, added after the house is otherwise complete. It is very remarkable that not the least variation in this style of house-plan (which has also been in use for untold centuries) can be detected in the whole of Beyrout. No Englishman or other European seems ever to have built a house on these shores with the civilised arrangement of rooms for various purposes connected by passages. The native type prevails in the poorest hovels as well as in the comparatively grand villas of the bankers. In some of the more important houses the great central chamber, always on the upper floor, is constructed on an almost colossal scale. It is sometimes as much as 25 ft. wide, about 30 ft. high to the ceiling, and 50 ft. or more long. The effect is that of a baronial hall with large chambers leading out on either side. One end is always furnished with a balcony (fig. 2) and at the other is a more or less unsatisfactory arrangement for a staircase, which is generally external to the house and protected by a lean-to. The lower apartments are always sacrificed to the exigencies of supporting the heavy stone floor of these very large rooms above, which in their turn are covered by ceiled roofs of the flimsiest construction. The flimsiness of modern roofs has been immensely increased by the introduction of the so-called "French" tiles, which now give so different a character to Levantine towns from the old-fashioned flat-roofed style of only a few years back. So, although the plans of these houses remain the same as they were in remote ages, their external appearance has been modified to an extraordinary extent. The very primitive habits of the Levantine people have much to do with the extreme simplicity of their architecture. Even in houses inhabited by the richest bankers of Beyrout and the affluent Europeans also adopt the native fashions) there is no idea of apportioning certain rooms to particular uses. The meals of the family (dinner parties are unknown) are served in the great central hall or "lewan" of the house, and there also receptions are held, and the general family life centres. Private sitting or withdrawing rooms are rare, and the side rooms leading out of the "lewan," called the "divans," are always used as bedrooms. Sometimes the kitchen is on the upper floor of the house, sometimes a detached building.

Sanitation in warm climates is, and always has been, a problem. In these modern semi-European, semi-Asiatic countries it is chiefly noticeable by its absence, and such matters remain in an absolutely primitive condition. It is needless to say that main drainage, or indeed any kind of drainage, is quite unthought of in Beyrout, although there is a regular water supply provided by an English waterworks company. Beyrout is also supplied with gas by another English company.

Very little can be said of the appearance of a modern architectural Levantine town from a purely artistic point of view. The efforts to beautify the buildings which are being erected to supply modern requirements—public or private—are deplorable in the extreme. Such efforts are naturally confined to the feeblest reproductions possible of the well-worn European types associated with the last century, but applied in a manner which shows a total ignorance of the appropriateness or the meaning of architectural forms. At the same time there is evidence of a certain local character asserting itself, which, however poor it may be, is interesting to study. These local characteristics consist of the use of pointed arch arcades supported on delicate marble columns imported from Italy for the purpose, with capitals of the classic "orders" pattern; the arrangement of the windows for lighting the immense halls and chambers which constitute these houses; and certain peculiarities in methods of construction due to the climate, and the rough soft sandstone of which they are built. But such characteristics, whether surviving from mediæval times under European influences or actually indigenous to the soil, seem hardly cultivated with any artistic perception; they are the mere accidents of local circumstances and methods of work. The constant introduction of the pointed arch in these houses



Greek Method of Drawing Curves

is the result of their mode of construction; the chambers are vaulted over with the rough stone and concrete pointed arch vaulting which is universal in the Levant, and as a consequence pointed arches over door and window openings seem to have been retained, partly through sympathy with the main constructional lines of the building, and partly through a certain convenience in constructing such arches on a large scale without proper centerings. This pointed arch style, however, is only retained for the most ordinary uses; wherever a purely decorative attempt is made the arches become semicircular, and the other details are imitated in a blundering fashion from European models.

In a future article we may give some description, with plans and diagrams, of ordinary Levantine modes of construction; these have hitherto attracted but little attention in Europe, and only a few French travellers, such as De Vogüe, have really touched the subject from an archæological point of view. The architecture of the Levant as a style, as far as it may be dignified by such a title, is of primitive antiquity; it is interesting to find such a "style" traceable in the buildings of the present day, in spite of Beyrout architects and engineers and the levelling influences of civilisation.

INSTITUTE, CAENBY, LINCOLNSHIRE.—The new institute at the village of Caenby, near Lincoln, has just been opened. The building is of red brick, with stone dressings and tiled roofs, in the old English half-timbered style, and the large hall will accommodate 250 persons. The architects were Messrs. W. Mortimer & Sons, Lincoln

GREEK METHOD OF DRAWING CURVES.

BY MR. DANIEL WOOD.

IN a letter in the *Builder* of January 18 I described and illustrated a method I had found of drawing the curve of the Ionic volute. The following remarks as to the possible methods employed by the Greeks in the delineation of curves in architectural detail and in the profiles of mouldings, are offered as a continuation of the same subject:—

One difficulty I had in drawing the volute was that unless the pencil was kept firm and steady during the whole of the revolution the line would waver. I tried many plans, but found the best way was to lengthen the string and fasten the end of it to a wooden rod drilled with holes, to rest this rod against the side of the cone, then to pull the string tight, put the pencil through the right hole, and draw the line, thus combining the stability of the rod with the elasticity of the string (see illustration).

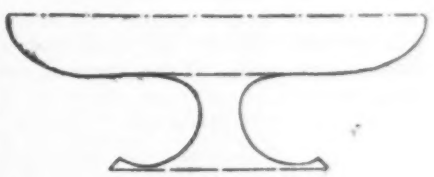
When I had drawn the volute, I wanted the lower line of the cushion of the capital which binds the volutes together, and tried to get it by loosening the rod from the cone and guiding it by a pin fixed in the drawing-board in such a way as to lead the drawing point in the required direction. I was experimenting with it when, to my astonishment, the pencil drew an ovolo, beautiful and perfect enough to satisfy even a Greek.

This was a fortunate find, but it took years to discover the various powers of this instrument. Its parts are simple enough—a string for the radius, a pin for a fixed point, a rod with holes for drawing the curves. Or, if you please, instead of the string, a circle drawn on the paper; and instead of the rod, a folded strip of paper. Mark on the paper the point of attachment to the circle, and the drawing point P between the centre of the circle and the fixed point, revolve the drawing rod round the circle, the edge always against the pin, and mark the course of P as you go; you will then have a Greek ovolo.

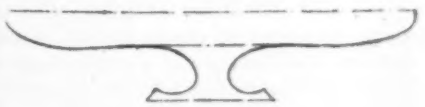
If P be beyond the circle, you will have scotias.

If P be beyond the fixed point, pear-shaped forms.

If P be at the fixed point, Kylix forms, of



KYLIX A



KYLIX B

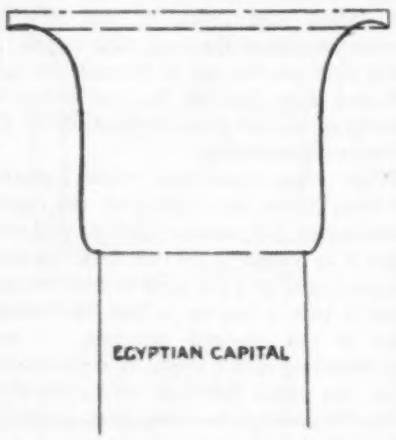
which many are to be found in the vase rooms of the British Museum.

Cymas and other simple forms are easily found. If the line is not exactly what is wanted, the revolving plane may be substituted, and a fresh point taken on it a little distance from the first.

Remember, the diameter of the circle is

the diameter of the curve; thus you can easily get the size you want.

One point in my use of this instrument is of interest. I had to reproduce the Temple of the Winds capital, and tried to get the outline by using these instruments in their most complete form, but could not get it. I knew that such lines could be drawn by the simple movement I have described, but rather looked down on it; however, I just tried it, and at once got the line. At this time I had a collection of Egyptian photographs lent to me, in which the capitals of many of the columns were large enough to show the curves, and I knew that such forms could be got from the movement just described. The points were too strong to admit of doubt. The little quirk at the bottom, the tendency of



the line to go behind the perpendicular, the great projection at the top, are just the characteristics of these curves.

It is hardly to be expected that in such days as these men will spend the time necessary to master Greek forms and methods, but this movement is so simple, and the curves it gives so useful, that one might hope for its adoption by both architects and designers in general, and if properly made metal instruments are obtained they are almost as easy to use as an ordinary bow pen.

I am happy in possessing a little old silver. The curves of the bowls and handles of the spoons are carefully drawn and appropriate. What a constant pleasure the use of them is! How different from having to look at the clumsy fiddle (dee-dee) patterns of the modern silversmith! One can only fancy what a spoon would be like with the bowl fashioned on an accurately drawn Greek ovolo, and the curve of the handle to match.

NOTES.

A Modern Cathedral.

MR. T. G. JACKSON has written a splendid letter on this subject in the *Guardian*—a letter which really sums up the whole truth of the question as to the style of a new cathedral. It is, of course, prompted by the discussion in regard to the Liverpool Cathedral, and we hope the Cathedral Committee will read, mark, learn, and inwardly digest it. In regard to the general question of style Mr. Jackson says:—

"All these questions about styles are misleading. Our object is not, or at least should not be, a new style. Our business is to recover and cultivate that artistic temper which will base itself on the conditions of the age and produce work that will satisfy and reflect them. If we do this our work will probably fall into some style more or less general, though it is hardly conceivable that in our complex society any style will ever become universal as in simpler ages. But, however that may be, the bringing in of a new style is no concern of ours. If it comes it will come of itself, as it always has done, and we shall awake to the fact that it has come without observation."

In regard to the special question of the Liverpool Cathedral he says (what we have also already said):—

"Surely it must be admitted that a cathedral to suit the twentieth century must be something very different from one of the twelfth or thirteenth. The long-drawn-out choir, where the conventual or collegiate body held their services, secluded from the nave, which served sometimes only for state, sometimes as the laymen's church, is no model for our congregational use. A cathedral like Canterbury really consists of two churches; the choir, seen from the nave, is only a dimly-lit recess at the end of it. In all our cathedrals, when large congregations assemble, the choir is forsaken for the nave, which is fitted up for the occasion in makeshift fashion. The inconvenience is obvious, but in our older cathedrals, built for a different service, it must be endured; to perpetuate it in a new one, which we can plan as we please, would be ridiculous. The preaching Friars of the Middle Ages, who aimed at attracting large congregations, felt the difficulty and met it by the large single-span naves of their churches, retaining the three-aisled plan only for a short eastern end. We, who have experience of the dome may improve on their plan, and bring still vaster areas within compass of a single voice. Let the Liverpool committee frankly accept the altered conditions of the age, and consent that their architecture should shape itself accordingly."

We would gladly have reprinted the whole letter, but that would not be fair to our contemporary; and the *Guardian* was the proper quarter for such a letter to appear, since it is the outsiders, and the clergy especially, who want instruction on the subject, rather than the architects.

Light Railways.

MODERN progress is producing a curious contest in regard to English roads. On the one hand, there is a distinct demand for light railways, a demand which must continuously increase. The general tendency of light railways, or, as they might properly be called, steam tramways, is to run along the high roads. On the other hand, the increase not only in bicycles, but in motors, an increase which is equally sure to become greater year by year, has produced a demand from both these classes of users of the high road for greater accommodation. It is obvious that the claims of these two parties are distinctly conflicting, because every inch that the light railway takes off a highway is so much off the convenience not only of the cyclist and of the ordinary driver, but also of the motorist. It was perfectly reasonable, therefore, that last week a deputation from the Roads Improvement Association should have an interview with the Board of Trade in regard to the proposed Light Railways Bill of the Government. The object of that deputation was to give legislative power to Light Railway Companies to take land by the side of highways for the purpose of building a new road on which a light railway could be laid, and also to make further roadways suitable for other classes of traffic, as well as to give them the power to tunnel where necessary under the roadway. In a word, the object of the deputation was to oblige, indirectly perhaps, light railways to be made along the sides of highways and not on the roads themselves, so as to enable the existing roads to be used for motor and other traffic. It seems to be clear that either this course will have to be taken, or else roads will have to be very largely increased in breadth where light railways are run along them if the traffic of the future is to be safely managed. There can be little doubt that we are arriving at a time when legislation in regard to high roads will become absolutely necessary if proper accommodation for the increasing traffic, especially near large towns, is to be found; but one may perhaps doubt whether time will be found for some sessions for this purpose.

Guard Wires on Electric Tramways.

THE Board of Trade propose to alter one of their rules as to guard-wires on electric tramways, and have been circulating copies of the amended rule, with an "explanatory memorandum," amongst experts interested in the matter. The new regulation is certainly an improvement on the old. The use of guard-wires under insulated telegraph or telephone wires will no longer be compulsory. On the other hand, if a bare telegraph wire can by any possibility be blown on to the trolley wire, then efficient guard-wires must be used. Certain members of the Tramways and Light Railways Association have taken exception to the amended rule. They want the clause about the overhead wires being "blown on to" the trolley-wire to be omitted, and they want a clause added to the effect that when the crossing wires are erected after the tramway conductors, then the cost of the guard-wires shall be recoverable from the owners as a civil debt. In the "explanatory memorandum" various useful hints are given as to methods of fixing the guard-wires, and clear diagrams are drawn to show how they should be arranged in various cases. We think, however, that it has not been satisfactorily proved that the increased safety from accidents by electric shock from broken telegraph wires given by this multiplicity of guard wires is not counterbalanced by the increased danger from the guard-wires themselves breaking. Earth connexions are not always operative at critical moments, and galvanised steel guard-wires are always liable to corrosion. We believe that traction engineers strongly object to using guard-wires, as it very greatly increases the risk of a breakdown on their system. There is no use in making the overhead work of an electric tramway more unsightly than it is at present, for a problematical good. The guard-wire should be used as sparingly as possible. Insulated telegraph wires or telephone cables, when not too heavy, we believe to be safe; but, of course, it is always best to bury them.

The Acetylene Association.

A BRITISH Acetylene Association has recently been formed for the advancement of acetylene engineering and manufacture. The work of the Association will be very similar to that of other technical societies, and will include the discussion and publication of original papers, and co-operation with Government and Local Authorities, insurance corporations, and shipping and railway companies, with a view to safeguarding and facilitating the transport and use of calcium carbide. The principal officers of the new Association, who have been elected by ballot, are Mr. F. G. Worth (chairman), Sir Charles Forbes, and Mr. F. W. Harker

(Vice-Chairmen); Mr. Charles Bingham (Treasurer), and Mr. J. R. Fawkner (Representative of the Official Organ). The Association is to consist of an unlimited number of ordinary members, and a certain number of honorary members and corresponding members. Having regard to the internal dissensions for which the acetylene industry has in past years been notorious, the formation of the new Association is a welcome indication that more rational methods of advancing the industry are to be adopted. Under the able chairmanship of Mr. Worth, who has been the principal pioneer of the industry in this country, and with the support of the other members of the Council, who are all well-known acetylene advocates, the Association should accomplish much good work. To quote from a leaflet issued by the Association:—"Too much must not be expected at first, but by working together and sinking, as members of the Association, all trade and personal differences, much may be accomplished for the general benefit." The Association at present consists mainly of manufacturers of acetylene appliances, but we understand that any one interested in acetylene is eligible for membership. The secretary (*pro tem.*) is Mr. Lacey Downes, 11, Ironmonger-lane, London, E.C.

Bunhill-row and Commemorative Tablets.

WE learn that the Society of Arts have just caused a tablet in memory of Milton to be erected against the front of a factory which stands upon the site of the poet's last home in London. Shortly before the outbreak of the Great Plague, Milton had removed from Jewin-street, Aldersgate, to what was at that time Artillery-walk, Bunhill-fields. Dr. Wright, the Dorsetshire clergyman, gave Richardson an account of his visit to the poet, whom he found living in a small house, blind and suffering from gout, seated in a little room, on the first floor, "hung with a rusty green." Milton lived longer in that house than he did in any other. He there composed his two epic poems and "Samson Agonistes," and, as Dr. Johnson says:—

"Being driven from all public stations, he is yet too great not to be traced by curiosity to his retirement, where he has been found by Mr. Richardson, the fondest of his admirers, sitting before his door in a grey coat of coarse cloth, in warm sultry weather, to enjoy the fresh air, and so, as in his own room, receiving the visits of people of distinguished parts as well as quality."

In his memoirs of Milton, Professor Masson relates that he ascertained with some trouble the position of the house in the present Bunhill-row, on the left-hand side of one turning northwards out of Chiswell-street. The white terra-cotta tablet bears a suitable inscription, which we gladly observe directs the wayfarer's attention to the "site of the house." In at least one instance which we recall, a tablet inscribed "lived here" was affixed by the Society of Arts on the front of a building in London that was erected since the death of the celebrity commemorated, so as to mislead people who take interest in those matters. We trust that the London County Council, who, it seems, have undertaken the task in future, will exercise all due care in carrying out their scheme in that behalf.

The Fine Art Society.

MR. GEORGE S. ELGOOD has another exhibition of his water-colour drawings of "Gardens" at the Fine Art Society's Gallery, Bond-street. As dainty and as painstaking as ever, they exhibit the greatest skill in handling, particularly in the great yew-tree subjects that are so largely represented in the collection. Perhaps the best drawing in the collection is that of "The Manor House, Cleeve Prior." Another distinctive feature of this artist's work is the accuracy with which he represents garden flowers. "A Corner of the Rose Garden, Ramscliffe," would satisfy the most captious florist, so photographic is the copy from Nature. We do not think Mr. Elgood has been so successful with his drawings of Italian gardens; there is the same accuracy as to detail, but the glamour of the southern sky has not been realised. The best of the Continental studies is that entitled "Among the Olives, St. Barthelemy, Nice," which is a dainty little drawing. Of the several views of characteristic Italian gardens, "Belvedere Villa, Cicogna," is the best, a very charming subject. The limit of excellence to these drawings seems to us to be self-imposed by the artist's methods. Whether the subject be an Italian or an English garden the treatment is identical; very occasionally there is the real feeling of sunlight and an attempt to obtain broader effects; and one comes away with the impression of having seen too much of the same kind of thing.

The Royal Academy.

ALL architects will hear with satisfaction that Mr. G. F. Bodley, so many years an eminent Associate of the Royal Academy, has been promoted to the full dignity of "R.A." The election was a just tribute to the uniformly beautiful and refined character of his architectural works. On the same occasion Mr. M. Ridley Corbett, a landscape painter of great individuality of style, was elected an Associate.

LETTER FROM PARIS.

THE State and the City of Paris are agreed at last upon the final plans for the transformation of the Champ de Mars. The State grants to the City the right to demolish the Galerie des Machines, and to set apart for building purposes the ground bordering the Avenue de Suffren and the Avenue de la Bourdonnais for a depth of 50 mètres. It is agreed that the central portion of the ground shall be left free of any buildings, and shall be arranged as a park with a lake in the centre. It will be some time, however, before the work can be commenced, for the Machine Gallery has been let for several months to come, and the buildings still existing on the Champ de Mars will scarcely be demolished before the end of the present year.

The Commission des Monuments Historiques has lately visited the Château of Versailles for the purpose of examining the work of restoration undertaken in 1901, and to decide what further work shall be put in hand this year. The restoration of the central façade on the gardens is now completed, and the work on the façade towards the Orangerie will be commenced. The restoration of the exterior of the Petit Trianon is also completed, but there is still a quantity of work to be done in the interior. The work on the Grand Trianon is far advanced, and the sculptors are now about to re-establish, after the painting by Martin, the splendid vases upheld by figures of children which used to surmount the balustrading. The horse-shoe staircase before the Grand Trianon will now be available to the public on holidays. The restoration of the large rooms of the Orangerie is being also actively undertaken. All this work is being done under the direction of M. Marcel Lambert, Architect to the Palais de Versailles, and, thanks to the efforts of the Prefect of the Seine and Oise Département, measures are being taken to provide the château with suitable fire-engines and the necessary water service, with which the buildings have for so long been quite unprovided.

A curious discovery has been made during the work of repaving the interior and exterior courtyards of the Louvre, and it seems singular that the discovery was not made before by one of the thousands of people who are continually crossing the paved portion. It has been found that the paving stones of the pavement on the river side of the building, paving which was probably put down by Lefuel, are arranged in such a manner as to form two large letters H taking up the whole width of the pavement in front of the pavillon Lesdiguières, and two letters N in front of the Pavillon Tremoille. These initials of the two Sovereigns under whom the Louvre Palace was so largely increased will be carefully left in their present places.

One of the oldest and most interesting of Parisian churches, that of St. Nicolas des Champs, will, owing to the setting back of the Rue Turbigo, shortly be entirely freed from the old and unsightly houses now surrounding it. An appropriate railing will be placed around the church.

The appeal by the sixty owners of houses at Paris against the decision made some time ago condemning each owner to pay damages to the amount of one franc, and the immediate execution of the work of the *tout à l'égout*, which they had refused to instal in their houses, has resulted in a judgment in favour of the defendants, for the reason that the Préfet de Police was not in a position to legally take measures against the delinquents. The triumph of the householders is, however, only a temporary one, for the City Authorities will now follow up the matter in the manner required by the law. There are over 60,000 householders at present who have not yet complied with the requirements of the recent law concerning the installation of the *tout à l'égout* system at Paris.

A formidable plan of "Haussmannisation," which will cost about 12,000,000*l*., is being urgently considered. This scheme will comprise, among other work, the completion of the Avenue Ledru-Rollin, the continuation of the Boulevard Raspail, the prolongation of the Rues Etienne Marcel and Echiquier, the widening of the Rues des Prêtres, Boetie, and Courcelles, and the construction of a new bridge between the Pont Neuf and Pont des Arts, to be called the Pont de la Monnaie. The disengaging of the Carnavalet Museum, the enlarging of the Halles Centrales, the completion of the Palais de Justice, and the transfer of the St. Lazare Prison are also a part of the scheme.

The late M. Jean Eugène Rouyer, architect, has left by will to the Académie des Beaux-Arts an annual sum of 40*l*. for a special prize to be awarded in the Section of Architecture.

The jury for the Concours de Façades of houses built at Paris in 1900 has awarded the premiums to the following six houses and their architects:—No. 1, Rue Danton, architects MM. Arnaud and Peronne; No. 21, Rue Monsieur, architect M. Gov; No. 85, Faubourg Saint-Martin, architect M. Hermant; No. 170, Rue de la Convention, architect M. Legriel; and No. 81, Avenue Malakoff, architect M. Le Voisvenel.

A scheme for enlarging the new Opéra Comique will probably be adopted shortly. It is proposed to purchase the buildings placed behind the theatre and facing the boulevard, and to construct in their place a continuation of the theatre building, with a façade on the boulevard, destined to increase the importance of the stage and its dependencies. The proposed work will cost 100,000*l*.

The Société Nationale des Architectes has elected its officers for 1902 as follows:—President, M. Fernoux; vice-president, M. Bouhon; secretary, M. Christie; and treasurer, M. Charpentier.

Some of the recent protests made by the "Vieux Paris" Committee have provoked quite an amusing and interesting controversy between the members of the above committee and a newly-formed society of young architects entitled the "Société du Nouveau Paris." These latter maintain that the "Vieux Paris" members exaggerate the importance of the old and often ugly and menacing gable ends, and buildings which are covered by their protection; the "Nouveau Paris" men desire, on the contrary, to develop a new aspect for the future Paris, and to encourage as much as possible an individual research after a modern style. The chief members of this new society are architects well known to the public by their street work;

amongst these are MM. Hector Guimard, the author of the Castel Berenger; Paul Binet, architect of the Porte Monumentale at the late exhibition, and others, all known as the "jeunes" or younger members of the profession at Paris, and all fervent advocates of an "Art Nouveau."

A committee of philanthropists has been formed with a view of founding an institution for male and female students whose resources do not permit them to continue their studies in the work they have set out for themselves. This institution will be constructed in one of the best quarters in Paris; its exterior aspect will be monumental and luxurious; the interior will be arranged in a comfortable manner, without luxury, and every attention paid to sanitation. The building will be arranged for 200 boarders. A competition will shortly be opened.

The Prefect of the Seine is authorised by the Municipal Council to enter into the following terms with the State concerning the demolition and occupation of the existing fortifications around Paris. The State will agree only to cede the various cites cleared by the demolition of the fortifications in accordance with the street plan prepared by the City; the State will cede gratuitously to the City all the ground necessary for the execution of this plan. The City will execute the plan only in accordance with the requirements of the building ground as occupied. The State will advance the funds necessary for the work; the City will repay this advance by annuities, and besides, will have the right to recover the road-making expenses from the future owners of the vacant ground.

The plan of the ancient chapel of the Sorbonne, long demolished, is at present being perpetuated in the large courtyard of the Sorbonne by means of paving stones of a different colour to the rest of the paving, similar to the work which was done in the courtyard of the Louvre and on the Place de la Bastille.

M. Le Deschault, architect to the Panthéon, has resigned his post to M. Nénot, the well-known architect of the New Sorbonne. It will therefore fall to the lot of M. Nénot to achieve the important temporary decorative and heating work in the interior of the Panthéon for the centenary fêtes of Victor Hugo.

At the commencement of the present year, the Municipal Council were occupied with a practical question of much public interest, and which, coming up on the eve of the elections, assumed almost a political importance. This was the price of gas, fixed at present at 30 centimes the cubic metre, an abatement of which has been long demanded. The Nationalist majority of the Council voted a reduction of 10 centimes, a popular proposal, which, however, will probably not be ratified by the higher powers, being regarded as an electoral manœuvre.

Yet more metropolitan lines are proposed, in addition to those already established or in progress. The most important, completing the circle on the south side, will run from the Place du Trocadero to the Gare de Lyon, crossing the Seine twice at Passy and at the Gare d'Orleans. It will have eighteen stations, and will serve the quarters of Passy, Auteuil, Vaugirard and the École Militaire, Montparnasse, Montrouge, the Gobelins, and l'Hôpital. On this last point there is a conflict between the municipal engineer and the "Vieux Paris" Committee, which has vehemently protested against the construction of a viaduct alongside of the Salpetriere, which would spoil the view of the fine façade of this former arsenal of Louis XIII., as well as that of a church built in 1670. The result will probably be some modification of the scheme.

The prolongation of the Rue de Rennes would involve the construction of an inclined bridge across the Seine, abutting on the extremity of the Ile de la Cité. The idea of a bridge here dates from the time of Baron Haussmann, but the proposal has raised an outcry from the "Vieux Paris" Committee, so far reinforced by the Press that the Municipal Council has felt bound to take account of it. This is one of the most picturesque and historically interesting points in Paris, and the proposed new iron bridge would shut out the view of the fine old bridge of Androuet du Cerceau, with the spires and gables of the old quarter rising above it. The objectors to the scheme are not unreasonable, for a glance at the plan of Paris will show that the prolongation of the Rue de Rennes could, with a very slight deviation, be led up to the Pont Neuf, which would afford accommodation enough for the traffic, and that there is really no necessity to spoil, for the sake of a new bridge, a piece of city scenery which is the work of many centuries.

The proposed prolongation of the Rue de Rennes also threatens the partial demolishing of the ancient Palais Mazarin, situated behind the Institut. The "Vieux Paris" Committee is taking the matter in hand for the protection of the building.

The danger to the valuable collections in the Louvre from the proximity of the Government offices which occupy the Pavillon de Flore is still a matter of public talk and of comment in the Press; the managers of the Fire-brigade Department have issued a short but very strongly-worded report on the subject, but the Government find it convenient to turn a deaf ear to these representations. The only possible solution of the question is to give up the whole of the Louvre to the Museum, from the Pavillon de Flore to the Rue de Rivoli, so that the whole building may be under one management.

Nine decorative paintings by M. Poilpot have just been placed in the galleries of the Sorbonne connecting the Salle des Pas Perdus with the Cour d'Honneur. In one of these galleries are five paintings representing the Court of Lions at the Alhambra, the Church of St. Sophia, the Roman Forum, the Temple of Philæ, and the Parthenon. In the other gallery are four pictures representing the City of Carcassonne, Nôtre Dame at Paris, the Château of Chenonceaux, and the Place des Vosges.

In regard to the Salons this year, the Salon Nationale (New Salon) will open on April 20, and there is to be an innovation in the shape of an entirely open-air sculpture exhibition, in the small square between the Grand Palais and the Palais de Glace. This will consist of works of sculpture intended for open-air sites in public places, so that they can be seen at the exhibition under the light they are ultimately intended for. The "Old Salon" will adhere to its usual opening day, May 1. Along with it will be opened, on the ground floor of the Grand Palais, an interesting exhibition of objects found during explorations in Persia and Chaldæa, arranged by M. de Morgan and his collaborator Father Scheil, a Dominican who is a professor at the Ecole des Hautes Etudes.

During ten days artists and other privileged persons have been invited to the atelier of M. J. Paul Laurens to see his large painting to be reproduced in Gobelins tapestry as a decoration for the Mairie of the XIIIth Arrondissement. M. Laurens has a distinctly individual style in his treatment of decorative subjects, and this new work illustrates his power in composition and a care for correctness and finish in detail which may perhaps be carried a little too far for the best and broadest general effect. In the foreground a group of men and women in seventeenth-century costume throng around the bronze statue of Colbert, saluting the effigy and bringing offerings of flowers. In the distance is a long procession of admirers, and of Gobelins artisans, in the midst of a landscape through which flows a river. The upper part of the picture is occupied by floating symbolical figures. To right and left of the composition powerfully-drawn nude figures support escutcheons ornamented with inscriptions. The whole is surrounded by a rich border of decorative foliage, cornucopias and garlands. The general scheme of colour is treated with special regard to the quality of tapestry work.

The death is announced of the Comte de Calonne, for many years well known as an art critic in various journals. M. de Calonne, who was eighty-four at the time of his death, was one of the first founders of the *Revue Contemporaire*, of which he was editor till 1870, and he was librarian of the "Société des Agriculteurs" of France. During the Franco-German war he was correspondent of the *Times* at Paris.

We have also to record the death of the eminent sculptor Adrien Gaudez, author, among other things, of the statue of "Lulli Enfant," of which we published an illustration in our issue of April 26, 1890. He was an artist of high talent, and had obtained many official "récompenses." Most of his principal works ("Echo," "Le Ciseleur," "Le Moissonneur," &c.) were purchased either by the Government or by the Municipality. He executed a statue of Perronet for the town of Neuilly-sur-Seine, the monument erected at Alais to the memory of Florian, and that at Remiremont to the memory of the soldiers of the Vosges who fell in defence of their country. During the war Gaudez was a prisoner at Magdebourg, and there carved in granite a mausoleum to the memory of French soldiers who had died in captivity, which still stands in the cemetery of that city.

The "Conseil d'Architecture" of the Municipality will shortly have to award, in conjunction with the Fine Arts Committee, the Lheureux prize. This is a prize which was founded by the widow of Lheureux, the architect, to be awarded in alternate years to a sculptor and an architect. The Fine Arts Committee last year awarded it to M. Dalou, for his great group of the Republic. The choice of an architect may be more difficult, but if it is to be awarded with reference to recent buildings, there can hardly be a doubt that the prize should go to the architect of the Petit Palais.

A DAY'S WALK IN MID-KENT.

STARTING from Week-street, Maidstone, along the high road to Rochester, and leaving the barracks upon the left, one emerges on to the plateau that slopes to the Medway. On the right hand stands Park House upon land that at one time appertained to Boxley Abbey; then from the rising ground between Lower Quarry and Middle Quarry Woods a crooked descent brings one to the Running Horse at Sandling, where a road turns to Aylesford. Before that road is followed it is quite worth while to step aside into the field upon the left hand for the sake of the prospect of the beautifully wooded valley through which the river winds and of the partially hidden ruins of Allington Castle in the foreground, upon the river's remoter bank. The castle, wherein Anne Boleyn passed her childhood, belonged (*temp.* Richard III.) to Sir Henry Wyatt, one of Henry VII.'s executors. It was the birthplace (1503) of his son, the courtier and poet, and of his grandson, who on January 24, 1554, sallied forth from Allington upon his bootless enterprise to collect his followers at, it is believed, the neighbouring Penenden Heath, the general trysting-place of rebellion. On the heath, now laid out as a recreation-ground, Wat Tyler and Jack Cade gathered their men. Upon Sir Thomas Wyatt's attainder for high treason the property went to the Crown. Queen Elizabeth bestowed it upon John Astley, Master of the Royal Jewels. In 1753 it was acquired by Lord Romney, to whose descendants belonged, until two or three years ago, The Mote, distant one mile eastwards from Maidstone. The general plan of the buildings and the moat can be fairly made out. The ruins include the entrance gateway and the porch of the great hall in the north court. Over the site of the buttery and offices is built a house which embodies parts of the original walls and of the old materials. In the south court's south-west corner are the remains of a tower containing the corbels of a fireplace. Whilst there is little to detain the student of military architecture, a detailed planning of the apartments would prove to be a difficult task. The parish church of St. Lawrence, recently restored, is for the greater part of Early English time, with an older tower. Here is a tumulus, and near the Quarry were found in 1844 the site of a Roman cemetery and the foundations of some coeval buildings.

Resuming our walk* for about two miles, and passing on the right Cobtree—which some identify with the Dingley Dell of "The Pickwick Papers"—and a pumping station of the Maidstone Waterworks, we reach Aylesford, the British Saissenaighobail, and scene of the great battle between Vortigern and Hengist and Horsa, fought A.D. 455, when, according to the Anglo-Saxon Chronicle:—

> This year Hengist and Horsa fought against Vortigern at the place which is called Ægels-threp, and his brother Horsa was there slain, and after that Hengist obtained the kingdom and Æsc his son.

Bede records that in his time Horsa's monument, bearing his name, was standing "in the east part of Kent," and a heap of flint stones at Horstead, some three miles northwards, is still pointed out as the grave of the Jutish leader. At Aylesford, in 1016, Edmund

* The route may be shortened by continuing along the Roman road northwards to Aylesford and Warren, gaining the Pilgrims' Way at the end of Boarley Warren, and so to Boxley (*vide* text).

Ironside routed the Danes whom he had pursued from Otford. At Friars, close to the town, are remains comprising an ancient chapel, and the foundations of the refectory of the first friary of Carmelites that was established in England, having been founded in 1240 by Richard de Grey and Ralph Frisburn; Henry VIII. gave it to Sir Thomas Wyatt the elder, and after his son's attainder Elizabeth granted the house and lands to John Sedley, of Southfleet, from whom they were inherited by his brother, Sir William, and there was born Charles Sedley, the poet. The Sedleys converted the friary into a dwelling-house, in which they incorporated the cloisters; a shield, with date and initials "1590 I. S.," is on a door beneath the entrance lodge's archway. In his diary, March 24, 1669, Pepys mentions Sir John Banks as living there—he had acquired the property from Sir Peter Rycant—and it appears that Sir John Banks remodelled the house and inserted new ceilings and panelling throughout. The parish church of Sts. Peter and Paul, at the bridge's north end, forms a pleasing feature of the view from the river's left bank. Restored in 1878 and (the tower) in 1885, it contains some early twelfth century work and the tomb of Sir Thomas Colepeper, of Preston Hall, now the seat of the Brassey family. Sir John Banks's daughter and co-heir brought the property in marriage to Heneage Finch, Solicitor-General, 1678-80, elevated Earl of Aylesford, October 19, 1714. Of the fourteenth-century bridge the two middle arches have been made into one, and we understand that it is proposed to rebuild the bridge, as obstructing the subsidence of river floods. Standing upon the bridge, we are upon the Pilgrims' Way, which, entering the county near Titsey in Surrey, near Westerham, may be followed to Chevening, where it formerly traversed the Park, thence across the river Darent at Otford, and so along the side of the southern slope of the North Downs to Aylesford and Charing. That ancient road is of pre-Roman origin; the now generally accepted belief that it formed the main line for tin traffic from the West of England to the Kentish Rutupiæ, or Sandwich haven, is strengthened by the fact that ingots of tin have been dug up along its course, having been hastily buried, it is supposed, by the convoys when threatened by robbers. Its narrow track, now grass-grown in places, and distinguished by the yew trees planted along it, as well as by several British earthworks and remains of the Roman occupation in the immediate vicinity, is now but little used, but as lately as the middle of the sixteenth century it was known as the King's highway from Westerham to Shoreham (in Kent). Lying along the outskirts of the Forest of Anderida, and following the range of chalk hills that extend through the north parts of Hampshire, Surrey, and Kent, it formed the route for pilgrims from Southampton sea-port and the West and South-West of England to the martyr's shrine at Canterbury, and pursues its way about half-way up the hillsides, presumably for protection from the weather.

From Aylesford we follow the Pilgrims' Way northwards through Cosenton to the road that leads to Burham, towards Blue Bell Hill, on which will be seen some ancient military earthworks. Scattered around are the denuded sarsen stones, locally known as "the countless stones"—so named after a tradition that obtains also at Stonehenge; and in the upper field on the left hand, beyond the Lower Bell inn, the cromlech of Kit's Coity House (tomb in the wood), the reputed burial-place of Vortigern's son Catigern, who fell at Aylesford; which Mr. Henry Brassey, of Preston Hall, lately placed under protection of the Crown. Here we gain the southern escarpment of the chalk hills which form the North Downs, and round about we see remains of the tertiary beds in the shape of some denuded masses of sandstone, including those just cited. The North Downs belong to the chalk strata of the Chiltern Hills, which, dipping beneath the London clay, reappear between Shoreham and Eynsford, and traverse the county to Hythe. To the south extends, from Hythe towards Sevenoaks, the range of hills of the Lower Greensand, from which is quarried the limestone or Kentish rag that lies between sandy beds of hassock. The two ridges overlook the valley (watered by the Len) in which we are walking, the bottom consisting of the gault, a stiff blue clay, highly fossiliferous, wherein the elm trees flourish, and of which a notable section may be seen at Aylesford, where also is a sand-pit whose upper stratum is composed of the Medway gravel mixed with flints, fossils from the gault, and fragments of water-worn rag and iron stone, above a stratum of white sand, being the upper stratum of the Sandgate and Folkestone bed of the Lower Greensand, as is visible in the sand-pits at Crismill farm, near Bearsted, Penenden Heath, Sandling, and Hollingbourne, and other places in their vicinity.

From the cross-roads at Boxley we make a detour of about a mile into the fertile plain to visit the church and the once famous Cistercian Abbey of St. Mary and the Holy Rood of Grace, founded in 1146 by William de Ypres, Earl of Kent, for a band of monks from Clairvaux, and endowed by Richard I. with the manor of Boxley. The ruined walls encompass a polygonal area of about fourteen acres; the brick-faced piers of an outer stone gateway on the west side yet remain; an inner gateway is described in a MS. account by Hasted (1774). In the south-west corner stands the granary; to the north-east of that is the house built by Sir Thomas Wyatt, where recent excavations seem to show that the retaining wall of the terrace is a part of the abbey's south aisle wall. The abbey and lands, valued at 219*l.* per annum, were granted at the Suppression to Sir Thomas Wyatt the elder. Lambarde (1570) describes the miraculous figures of the Holy Rood and St. Rumbald, with which the monks imposed upon the credulous. At Farthings, where Henry III. granted to the monks a weekly market for the fruits of their tillage, on the road just outside the west wall, around the enclosure, is St. Andrew's Chapel, now a cottage, which contains portions of its windows and doors, including the priest's door near the east end of the original south wall, and a three-light window in a new south wall. When on his way, 1321, to Leeds Castle to punish William Colepeper, the castellan, for denying admittance to Queen Isabella, Edward II. halted at Boxley, and during his sojourn there granted to the City of London a charter of freedom of choice in the election of Mayor; and there Archbishop Warham met Cardinal Campeggio (1518) on the latter's journey to London in the matter of the King's divorce. At the time of taking the Domesday Survey Boxley (Boscleu) was one of the 184 manors in Kent, besides 250 elsewhere, held by Odo, Bishop of Bayeux, and on the adjacent Penenden Heath was held the three days' trial of Odo, on charges of rapacity and injustice brought against him by Lanfranc, as is recorded by Ernulph, the Canterbury monk, afterwards (1114) Bishop of Rochester. The early thirteenth-century parish church of All Saints has a later battlemented tower with turret, not infrequent in these parts. It is remarkable for its western porch, by some called a galilee, which has since been extended southwards; it is claimed for a mortuary chapel by the owners of Vinters, near Maidstone, and is said to have been built by Roger de Vinter in the middle of the fourteenth century. The corbel ends of the mouldings over the west door have carved heads of Bishop Hamo de Heath, of Rochester, and, it is supposed, Edward II. The latter bears a crown of four large and four small strawberry leaves, as on that King's effigy at Gloucester. The church contains memorials of the Wyatt family, and a brass of Richard Tomyow in plate-armour, who died June 12, 1576. (See also the late Rev. J. Cave-Browne's history of the parish.)

Returning to the Pilgrims' Way, we proceed south-eastwards to Detling, where the highest point, at a short distance along the road to Sittingbourne, is 655 ft. above sea-level, and on to Thornham, where, at the cross-roads by the Black Horse inn, is a tumulus. The by-road on the left hand leads to Thornham, or Godard's Castle, now in ruins, where Roman sepulchral urns and other remains have been discovered. In Thornham was found the valuable stratum of white Maidstone sand which, worked by Italian craftsmen, advanced the glass industry in this country. The parish church comprises the "Cutte" chapel. Queen Mary gave the Vinters estate in Boxley parish to Dr. John Cutte. The old Wevering manor-house is now a farm, acquired by the Vintners' Company from Stephen Mason, of Bearstead, in or about 1560. Passing the quarries on the left side of the Pilgrims' Way, with Gore and Longham Woods in the valley below on the right, we continue through Broad Street and Little Allington to Hollingbourne, where we turn to the north-east to ascend the hill to White Post, just beyond Hollingbourne House, to enjoy the view at an altitude of 630 ft. The Elizabethan manor-house of the Colepepers, built of small red bricks, with stone dressings, and now deprived of its northern wing, stands, it is said, upon the site of the court-house which Athelstan bought from his father and gave to Christ Church, Canterbury, and embodies a structure of an earlier date. Of All Saints' Church (restored by Sir Gilbert G. Scott) the nave, chancel, north aisle, and tower are apparently the original fabric; a window on the chancel's north side and the east window have some elegant Decorated tracery; the nave arcade of pointed arches is carried by octagonal pillars. A fifteenth-century chauntry chapel at the end of the north aisle was converted into a monumental chapel for the Colepeper family; the floor has been raised and the walls are faced with flint work. There are the monument of Francis Colepeper, of Greenway Court, *obiit* 1597, and altar tomb of Elizabeth, wife of Sir Thomas Colepeper, *obiit* 1638. The villages of Hollingbourne, Thornham, and Boxley are named, it is said, from the holly, thorn, and box trees in their respective neighbourhoods.

Crossing a field beyond the churchyard, we enter the by-road to the hamlet of Eyhorne-street, which gives a name to the hundred, noticing on the left hand the fine old half-timbered Godfrey House, built in 1587 and reinstated in 1859. We gain the high road from Ashford to Maidstone at a point nearly opposite a park gate of Leeds Castle,* and, turning westwards, follow the main road past the Magpie Bank Caves, some supposed dene-holes discovered two years ago, Hollingbourne Union Workhouse (1836) at Whiteheath, Crismill Farm, and Bearsted Parish Church, conspicuous for its lofty tower. And so, descending the hill between the boundary-walls of The Mote, formerly the seat of the Earls of Romney and since belonging to Sir Marcus Samuel, and Vinters, at the foot of which are Hollingworth's, once Whatman's, Turkey paper-mills, we arrive at Maidstone again.

BERMONDSEY ELECTRICITY WORKS.

On Thursday of last week the new municipal electric lighting and dust destructor works at Bermondsey were formally opened. The destructor consists of six cells, which are able to consume 50 tons of domestic and trade refuse every day. The heat from the burning refuse passes through flues to the water-tube boilers, forced draught being used in the furnaces. The boilers, however, can be fired by coal if necessary. The engines used are Willans' high-speed engines directly coupled to multipolar dynamos, which generate current at 480 volts. The power is distributed by a three-wire direct-current system, with the maximum permissible voltage (480) between the outers. The mains are triple concentric mains, so that we do not anticipate that any trouble will be experienced in regulating the voltage of the positive outer to earth, or that there will be any appreciable earth currents over the area of the supply. The charge to consumers is 6d. for the first hour of their daily average demand, and 3d. per hour afterwards. For motors a charge of only 2½d. per unit will be made.

In our opinion, the charge for motive power is very cheap, and it ought to be a boon to manufacturers in the district. For lighting at 240 volts the charge is excessive. We have not yet tested a 240-volt lamp which has anything like the efficiency of the ordinary 100-volt lamp. We think, judging from careful tests that we have made, that the average efficiency of the 240-volt lamp is only about half that of the 100-volt lamp. Hence, to compare the Bermondsey supply with a 100-volt service we must double the prices charged. Another point that consumers in this district will have to consider is that their switches will have to be specially constructed, and that they will be only able to control a small number of lamps. In order to popularise the light we understand that the Council propose to introduce a system of free wiring and "slot" meters. They are also going to have an electrical exhibition in the Town Hall at the end of next month. We would suggest that they exhibit tests made by independent authorities on the relative merits of 100-volt and 240-volt lamps. Such tests would be of great interest to consumers, and

* For plan and description see *Builder*, August 3, 1889.

we would welcome data which we could compare with the results of our own experiments. Slot meters also are extremely inaccurate.

The general arrangements of the electrical station, which are due to Messrs. Kincaid, Waller, & Manville, are excellent. We noticed that separate wattmeters were inserted in the charge and discharge circuits of the cells, instead of having a combined instrument for both. We think this a great improvement. It is proposed to utilise the clinker from the destructor plant in making flagstones. It is ground in a mill, and a paste is made by mixing it with water; it is then by hydraulic pressure made into a stone of the size required. The grinder, mixer, and hydraulic pump are all driven by a 25-h.p. electrical motor.

THE ARCHITECTURAL ASSOCIATION: DISCUSSION SECTION.

THE seventh meeting of the Discussion Section of the Architectural Association for this session was held at 56, Great Marlborough-street, W., on Friday, the 24th inst., when Mr. F. G. W. Buss read a paper entitled "The Clerk of Works: His Duties and Responsibilities." Mr. George H. Smith, the Vice-Chairman of the Section, presided.

The Chairman, in opening the proceedings, said his first duty was to welcome, in the name of the Discussion Section, Mr. Walker and his fellow members of the Clerk of Works' Association, who had so kindly come down to the meeting in order to give them the benefit of their experience.

Mr. F. G. W. Buss then read his paper on "The Duties and Responsibilities of a Clerk of Works." He remarked at the outset that he had purposely prepared a short paper because he thought the chief object of the meetings of this section was the discussion that takes place after the paper is read, and not the paper itself. He proceeded by quoting Mr. Hudson's definition of a clerk of works, and went on to deal with the duties and responsibilities in a concise and interesting way, and concluded by remarking that architects would be more practical if they were to serve for one year as assistant clerk of works under a good man.

The discussion was opened by Mr. Louis Ambler, who proposed that the best thanks of the meeting be passed to the author for the very excellent paper they had listened to. This was seconded by Mr. Arnold S. Tayler, and supported by Messrs. Brady and Walker, on behalf of the Clerks of Works Association, and a most interesting discussion ensued, in which the following gentlemen took part, viz., Messrs. Max Clarke, J. Pain, E. W. Wonnacott, Davis, and G. H. Smith. The vote of thanks was made to include the members of the Clerks of Works Association, who had so kindly attended as visitors, and having been put to the meeting, was carried with acclamation.

Mr. F. G. W. Buss having replied, the meeting terminated.

It was announced that the next meeting of the Section would be held on Friday, February 7th, when Mr. J. Dudley Forsyth has kindly promised to read a paper on "Designing Stained Glass," and it is hoped that Mr. Lewis F. Day will be able to attend as Special Visitor.

COMPETITIONS.

LAYING OUT RECREATION GROUND, GILLINGHAM.—In a recent competition for laying out sixteen acres of land as recreation ground, Gillingham, the first premiated design was submitted by Messrs. Barron & Son, Borrowash, Derby; the second premiated design was by Mr. A. Charlton, jun., Napier-road, Tunbridge Wells; and the third by Mr. George Willis, Carter-street, Greenheys, Manchester.

RE-BUILDING IN PALL MALL.—We notice that the demolition is in progress of the house standing at the north-west of the crossing of Pall Mall with Waterloo-place. It forms a corner house of one of the two blocks erected in Waterloo-place as part of Nash's scheme for the approach from opposite Carlton House northwards, through St. Albans-street and St. James's Market, into Regent-street.

TELEPHONE OFFICES, VICTORIA EMBANKMENT.—In regard to this building, illustrated in our last issue, Mr. Gilbert Seale asks us to mention that he executed all the sculptor's work and carving on the building.

Corners of Old Holland: The "East India" Tower, Enkhuizen.

CORNERS OF OLD HOLLAND.

THE two sketches which we have grouped under the above title are reduced from two illustrations in a highly picturesque volume published by Messrs. Fisher Unwin under the title "Old Dutch Towns and Villages." It consists of a number of drawings in black and white, many of them in a very powerful style though perhaps not free from a certain affectation of archaism, by Mr. W. O. J. Nieuwenkamp and Mr. J. G. Veldheer; the literary descriptions are by Mr. W. J. Tuyn.

The volume contains no information of special interest to architects; it is a work of art in itself, with its fine paper and print and the original style of its illustrations and decorative margins, and it forms a collection of illustrations of a most curious and interesting set of picturesque corners of old buildings in places many of which are out of the beaten track and are little known.

Of the two illustrations we give as examples, the first illustrates a building which, as far as we can understand the vague expressions in the text, is no longer standing. Enkhuizen, which was a very old town, was in the seventeenth and eighteenth centuries one of the largest and wealthiest of the cities of the Zuyder Zee. "Now the harbour is filled up with sand, the herring fisheries are no more, the place has fallen into decay, and it is a mere shadow of its former greatness."

Durgerdam is another of the sea-coast villages. The drawing of the shipyard is a most effective piece of composition in black and white.

We recommend the book to the attention of our readers; they will find much that is of artistic interest in it.

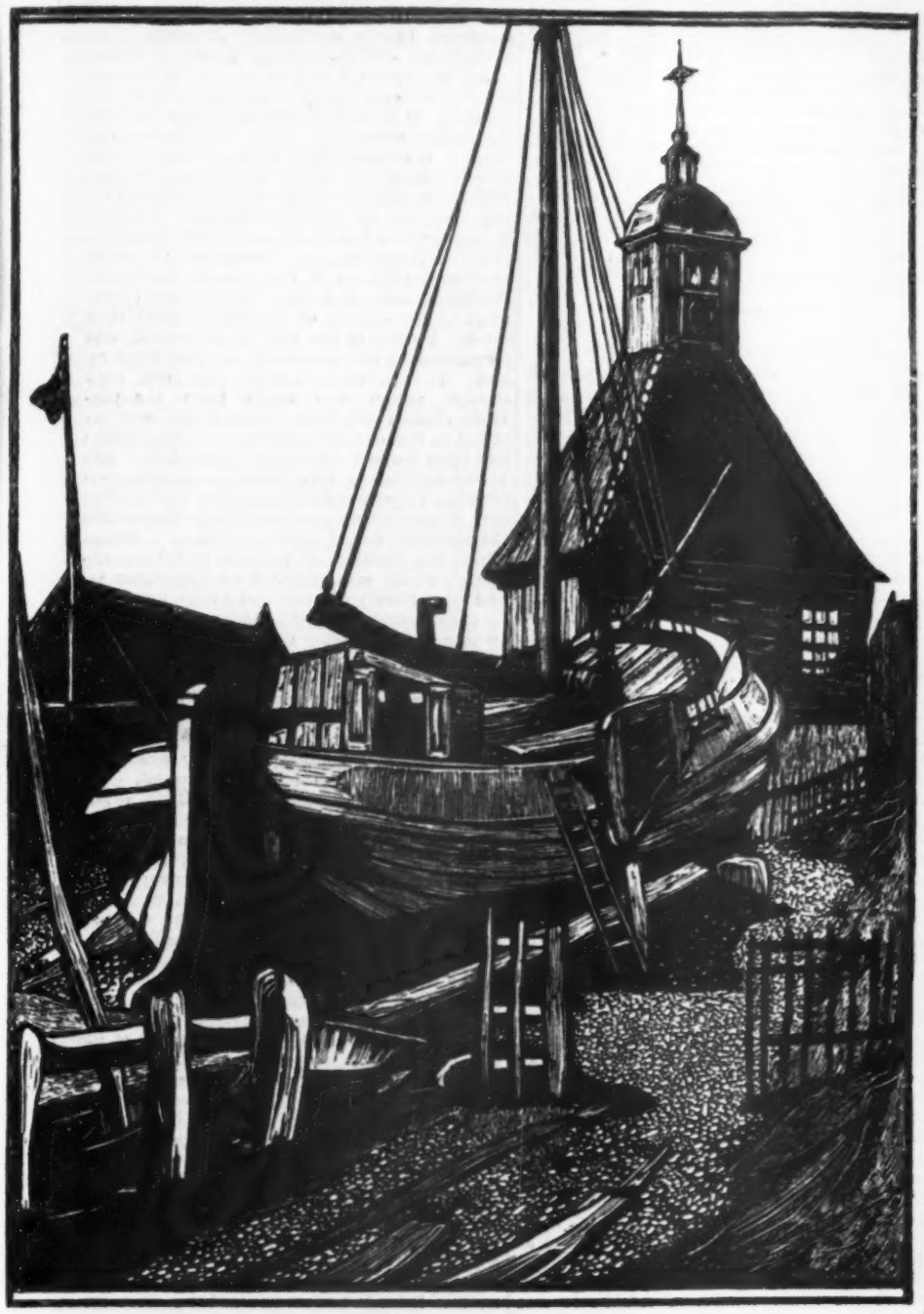
AN ARCHITECT'S DUTIES.

THE following is an abbreviated report of the address delivered by Mr. J. Lavender, the President of the newly-formed "Wolverhampton and District Architectural Association," at their first annual meeting on January 16:—

"May I offer you a few thoughts on an architect's duties:—1. To his client; 2. To his contractor; 3. To his art.

The client should have first demands on our consideration for two reasons: (*a*) He pays our fees; (*b*) he gives the opportunity of showing our skill. I will confine my remarks to the former of these two reasons.

He Pays Our Fees.—Do we always sufficiently realise that consequently our best—our very best—talents on such special work belong to him, and that it would be simply dishonest of us not to give our best to his work. As a rule he puts confidence in his architect and tells him how much he wants to spend; it is for us then to honour that trust, and see, if it



Corners of Old Holland: The Wharf Shipyard, Dordrecht.

is possible (and I admit it often is not), that our design does not lead him into extra cost; but if, as often happens, the accommodation asked for it is utterly impossible to give for the sum he names, then we should tell him so at once, and not give him reason to think that he can do the work for the sum named when we know he cannot. It is no excuse for us to say, 'Well, if he wants that he will have to pay for it.' I reiterate that the client has bought our talents, and one of them is that we know better than he what a building will cost, and to keep this knowledge from him is, I say, unhesitatingly, dishonest. It may be said, 'But if I tell him it will cost so much he will relinquish the work, and I shall lose the job.' Very well; better so a thousand times than mislead.

But we may see that the building can be built for the money without lavish architectural treatment; then we must relinquish our own wish for architectural display; our first duty is to our client.

Then, as to preparing very careful drawings and specification, we should mind this, for in this way we can spare our client many extras. Our best must be given, so we should consider well every little detail, and not leave it to be cleared up as we go on, and put in an extra for it. Superintendence, too; we must remember we are being paid for this and should not shirk a journey or two, nor say to the builder, 'I leave it to your judgment.' He is not paid for this; we are.

2. *His Duties to the Builder.*—Has he any? Most decidedly. I often think what gracious men the builders must be that they practically place their profit or loss in the hands of the architect. The architect orders this, and it must be done; the architect says that is wrong, and it must be undone. The architect is despotic; he has enormous power; but the confidence thus willingly placed in his hands should be respected. Some architects, I know, are most arbitrary; they are, in other words, too big—too high and mighty. 'I have specified so-and-so, and you are to carry it out.' Are architects infallible? Very often the client considers it is part of a builder's principle to be unprincipled, and that he will take him in if possible, and he goes so far as to warn his architect to be on his guard, for 'builders are rogues.' Now, what should we do without builders? My experience leads me to say that on the whole builders are honourable men and willing to do all that is reasonable. There are exceptions, whom, to my cost, I have had dealings with; but, as a rule, I find builders most obliging and honourable, and the rogues few and far between. A word as to detail drawings. I think a very important duty of an architect to the builder is that he should be prompt in supplying the details he asks for and requires; it is not fair to expect the builder to fulfil his contract if we keep him waiting for details; and yet I am afraid this often happens.

3. *His Duty to his Art.*—Our art has a noble and ancient history; architecture is the most ancient of all arts, its birth being almost coeval with the creation of man upon this earth. Then, as we architects of to-day are the representatives of this ancient art, we owe a great duty to it. When we consider the noble buildings of the Egyptians, the sublime grandeur and most sensitive delicateness of the Grecian, the exquisite proportions of the Roman buildings, then the graceful and soaring Gothic of the Middle Ages, surely the responsibility of our duty appears in all its urgent demands. But how are we doing our duty in the face of so magnificent a heritage? Are we faithful to our high and great legacy? One reason, to my mind, of those past great achievements in architecture was that the architect (as Longfellow tells us) 'built his great heart into these sculptured stones.' Art was first; fees second. Is it so with us? I am afraid we often think of fees first, then our art. We make our art too much of a commercial transaction; our heart should be in our art if we would emulate our great predecessors. It is no answer for us to say, 'Ah! but we have no cathedrals to design and build.' What matter? The Great Architect has given as much care and put as much design and work, perhaps more, into the little butterfly as He has into the monster elephant or shark. And in our small work there is as much need for care and art as in cathedrals or municipal buildings. I say it is our bounden duty to see that we do not neglect these smaller matters.

There is to-day a great tendency towards novelty, for novelty's sake, and you may say, 'Well, our client will have it.' Ah! but our duty to our art demands that we shall not give it. Art first. And I feel confident, if we stick to this determination, the public will yield, and we shall not drag our noble art in the mire of idiotic ignorance and vulgarity. You may say then, what lines would you go upon? I say at once, utilitarian twentieth century lines clothed with the purity of architectural grace. We have been tied and bound too long. Do not be mere copyists and stick too fast to modules and such like; true architecture knows no laws or rules that would hamper requirements. I say again, whatever use demands in building true architecture can give; and it is for us who wield the pencil to work out how it is to be done.

Were the old mediæval designers ever hampered as we allow ourselves to be? When an addition had to be made to a building, though a hundred years had elapsed since its erection, did they go and sketch and copy every detail of moulding and carving that their work might match? We know just the opposite. Hence the great beauty which we now admire in Gothic buildings, especially those which show to us various styles in one building. Were they fools? Did their employers say they did not understand their work? Why, then, are we to be tied down by such despotic ideas that in our new buildings we must be so very careful that our mouldings, &c., are what we please to call 'correct?' I admit that there is appropriateness in the connexion of one kind of moulding with a certain style or order of architecture; but surely there is a limit. Now, if an architect gets a building to erect and sticks a portion of the façade of the Horse Guards to it, it goes for architecture. I grant it may be a good copy, but not art; the honour of it belongs to Kent, the architect of the Horse Guards. But to my mind the architect of the little villa down the road who has first made his plan to suit his client, and then clothed it in elevation with the cloak that will fit it, is by far the nobler man, and has taken up the mantle fallen upon him to more purpose than the robber of other and dead men's brains. But you may say, 'If we don't design according to received models the public will say we are ignorant.' I do not believe it for a moment. Art is art; and if it is true, common-sense, original architecture, it will demand and receive its reward. What a bugbear and hindrance it is to us, the public prejudice for old designs. But we have a duty to our art, and to future generations of architecture, which should incite us to break free from these trammels.

A word on the fashion of trying to be odd and eccentric in our designs. This is, to my mind, one of the worst sins of the present-day architect. If because we want a pretty corner

in a room on our plans it necessitates a peculiar jutting gable or hip on an elevation, this is legitimate; but to my mind it is a libel upon architecture to make an awkward corner in a building simply to create an odd appearance outside. True architecture, I take it, is first necessity and utility in plan and arrangement; then architecture is so pliable that it will clothe elegantly if the architect has the ability to do it. Again, why should you run up a gable just for appearance? I was in a neighbouring town a short time ago and was greatly surprised to find a most elaborate gable erected over an otherwise good building—it was utterly useless and had to be tied up with an iron rod, as I saw from a distance. Poor, poor architect to stoop to such defacement of this art.

Do you say, then, I do not agree with architectural effect for its own sake? Most certainly I do; but sham in any form I abominate in architecture. A gable is the natural and architectural finish of a span roof: but it is not architecture to form a span roof—a false roof—just to put up an elaborate gable. There are means for architectural embellishment which even to the uneducated eye proclaim the fact at once; but it is degrading to our art, and shows great lack of architectural talent in the architect, to erect constructional features simply and only as ornaments. Let us have purity by all means. I have no quarrel with those who like elaborate or ornate buildings. As much of ornament as you like, only for our art's sake let it be ornament, not constructional features falsely used. Neither let us be odd for oddity's sake. Be true to your art, and your art will serve you in all emergencies."

THE SURVEYORS' INSTITUTION.

THE following is the list of those who have satisfied the examiners at the Preliminary Examination of the Surveyors' Institution, held concurrently in London, Manchester, Dublin, and Glasgow, on January 15 and 16:—

H. A. Adams, Hampstead; H. C. Allen, West Hampstead; H. J. Amoore, Hanwell; W. J. Arnold, Winchester; D. F. Aynsley, Newcastle-on-Tyne; H. J. Baker, Crowborough, Sussex; R. A. Barrows, Exeter; W. W. Batstone, Wandsworth Common; E. G. Bayne, London; C. J. Bingham, Forest Hill, S.E.; A. G. Bird, Kensington; B. Blackbourn, Upper Tooting; R. L. Blake, Southsea; V. H. Blessley, West Hampstead; F. G. Bliss, Watford; H. C. Boden, Fulham; E. Bourdas, Clapham Common; A. E. Bridger, Winchfield; D. F. Broome, Highbury; S. J. Bruzaud, London; J. T. Burge, Bristol; F. Carter, Bradford; T. P. N. Chalk, Linton; H. S. Chamberlain, Southsea; C. M. Chaplin, Ipswich; D. W. Clark, Twickenham; H. Clark, Gunnersbury; L. Van Clark, Brockley; M. W. Clarke, Leemount, co. Cork; A. I. Clemesha, North Chiswick; P. T. Clover, Southsea; H. A. Collin; Cambridge; A. H. Corble, Waltham Abbey; A. K. Corfield, Manchester; F. C. Crimes, Kidsgrove; D. Crook, Wimbledon; C. J. Dampney, Ealing; J. Dawson, Halifax; F. E. Dixon, Ryde; W. Dunn, London; F. R. Elloart, London; D. W. Emery, Cosham, Hants; H. C. English, Folkestone; W. Fawkner, Macclesfield; R. J. Godson, Croydon; R. J. Goulston, Sydenham; C. F. Gowing, Norwich; H. G. Green, Ipswich; W. S. Gwynn, London; R. A. Harris, Chichester; H. P. Harrison, Burton-upon-Trent; A. A. Hart,* Southfields; P. G. Hay, Wallington; H. M. Heald, Leeds; C. E. Henderson, Broxbourne; F. J. Henson, Tonbridge; E. A. Hepworth, Manchester; F. V. Hobson, London; R. E. Hollis, Windsor; E. G. Houghton, Woodford Green; E. W. Hughes, Bath; O. G. P. Jack, Hornsey Rise; F. Jackson, Hitchin; A. S. Jones, Clapham Common; C. R. Jones, Wolverhampton; A. H. Jones-Williams, Peterborough; R. W. McL. Keay, Crouch End; H. G. Labdon, Paignton; L. H. Lambert, London; S. Lancaster, Sandgate; T. D. Le May, Tonbridge; H. Mahomed, London; J. V. Makins, Glasgow; M. R. Martin, Chiswick; R. E. Matheson, Leeds; F. W. Matthews, Erdington, Birmingham; J. R. McDonald, Southall; D. R. McDougall, Streatham; F. C. Meager, Swansea; E. H. G. Miller, Old Malden; G. A. Minter, Faversham; F. W. Neate, Newbury; E. Newhouse, Slyne, Lancaster; H. P. Nye, West Battersea; H. B. Owens, Wrexham; B. C. Page, London; E. Page, London; R. B. Pargiter, Uckfield; F. C. Pearson, Morecambe; C. W. Perry, London; E. S. Petch, Scarborough; C. N. Philpot, Wickham; P. T. Power, Walton-on-Thames; S. Preston, London; C. H. Proctor, Burley-in-Wharfedale; W. P. Puddicombe, Swansea; A. J. Purkess, Cirencester; G. N. Rawlence, Salisbury; H. W. Redfern, Hampstead; F. Rendell, Newton Abbot; B. L. Rice, Watford; F. W. Rivers, Reading; J. R. Rogers, Maldon; W. Salter, Ilford; W. E. Salter, Attleborough Hall, Norfolk; E. R. Sarsons, Mosley, Birmingham; H. E. Sherwin, Wandsworth Common; L. Small, Maidstone; H. V. Smith, Egham; P. Smith, Ripon; R. O. Spreckley, Hereford; M. B. Stacey, Reigate; H. K. Steeds, Edgbaston, Birmingham; R. B. Stephenson, Darlington; D. C. Stimson, Brixton Hill; W. M. Stokes, Llanidloes; L. Sturt, Tollington Park; C. G. Talbot, Southend-on-Sea; A. C. Taylor, Lee; R. L. Thynne, Wandsworth Common; E. J. Turner, Saltaire; F. Turner, Morley; R. C. Turnham, Finchley; E. L. R. Vining, Sydenham; E. Wickenden, Tunbridge Wells; H. McI. Wicksteed, South Norwood; G. Wilks, Ashby-de-la-Zouch; J. B. Williams, St. Helen's; J. P. Willmot, Ealing; S. M. Wilson, London; R. E. Woodhams, Hastings; A. H. Woolley, Loughborough; S. Young, Brighton.

* Passed at head of list.

ARCHITECTURAL SOCIETIES.

CARDIFF, SOUTH WALES, AND MONMOUTHSHIRE ARCHITECTS' SOCIETY.—At a council meeting of the Cardiff, South Wales, and Monmouthshire Architects' Society, held at Cardiff, under the presidency of Mr. E. W. M. Corbett, Mr. E. M. Bruce-Vaughan referred to the terms of a recent competition for a chapel in Cathedral-road, Cardiff, and eventually, on the proposition of the Chairman, the following resolution was unanimously adopted, and Mr. Dashwood Caple, hon. secretary, was requested to send a printed copy of this resolution to each member of the Society as soon as possible:—"It having been brought before the council that a competition has recently been invited for a chapel in Cardiff, in which the fees to be paid to the successful competitor were utterly inadequate for the work required to be done, the council protest strongly against the competition, and hope no member of the Society has taken part in it or will do in any future case on similar terms."

LIVERPOOL ARCHITECTURAL SOCIETY.—On the 20th ult., in the Law Libraries, Castle-street, Mr. R. Wynne Owen read a paper to members of the Liverpool Architectural Society, under the presidency of Mr. P. C. Thicknesse, on "The Value of Sketching," illustrated by lantern slides and examples of original sketches. Devoting his attention first to the question how to sketch, he advised that it be done alone and with an attitude impervious to inquisitive villagers who may crowd around one, trying to realise the impressions created in the mind by the subject. As to when to sketch, he said it ought to be whenever opportunity occurred, paying attention to architectural history and sequence and the rudiments of construction. In describing what to sketch, he said it should be anything and everything capable of throwing light on, or towards aiding the solution of the problems surrounding architecture at the present time. This, he said, was a policy of progress as opposed to vain repetition.

ULSTER SOCIETY OF ARCHITECTS.—A meeting of the Ulster Society of Architects was held on the 23rd ult. in the offices, 16, High-street, when the chair was occupied by the vice-chairman, Mr. W. J. Gilliland. The minutes of the previous meeting having been read and confirmed, three members and two Associates were elected. The Report of the Council of the Society was then read by the chairman, in which it was stated that since the last meeting of the Society, which was held on December 18, five regular meetings of the Council have taken place, and a number of informal meetings in addition in connexion with the opposition to the clauses proposed by the Belfast Corporation in the omnibus Bill which they are now promoting in Parliament. The terms of the clauses having been ascertained indirectly, the Council considered them very objectionable. A deputation, therefore, was hastily called together, which waited on the Law Committee and requested that a copy of the clauses as promised should be given to them, and, this being done, the deputation proceeded to point out the very serious objections to practically the whole of the proposals. As then drawn, the clauses gave the City Surveyor complete control over the height, character, and design of the elevations fronting or overlooking any street, and also the materials of which it was constructed, without any by-laws or rules of any kind to determine his action in any case, the words being "the surveyor may disapprove of such elevations on the ground that they are in his opinion objectionable," the only relief being a proposal "that any person aggrieved" may appeal "to the Recorder of the City," whose decision was to be final. This clause also provided that drawings showing the elevations of the adjoining buildings to that proposed to be erected or proposed to be altered, and detail drawings drawn to a scale of not less than 2 ft. to 1 in. of such portions as the city surveyor might require should also be lodged. As a result of that deputation the Law Committee struck out those portions of the clauses requiring large-scale drawings and also the drawings of the adjoining premises, with the exception of the height of the adjoining premises, which was retained. The Bill as thus amended came up before the Corporation in committee on December 16, when another deputation of the Council waited on the Corporation and stated further the objections to the clauses of the Bill in their then form. A copy of the Bill, as deposited, was forwarded to the secretary on December 23, and it was then found that the only change which was made from the previous clauses was "the Corporation" was inserted in lieu of "the surveyor." A suggestion had been thrown out by the Lord Mayor, and a communication was made in consequence from the Improvement Committee to the effect that if the Society prepared draft clauses the Corporation would consider them. Meanwhile the opinion of counsel had been obtained, which was received on December 24, and immediately printed, and a copy furnished to every member of the Belfast Corporation. In face of this opinion it was felt that it would be entirely improper for the Council to submit any clauses to the Corporation, and a deputation waited on the Improvement Committee, and informed the members that the principle of the clauses was so vicious and unsatisfactory that the Council could not under the circumstances submit any proposal. On December 31, at a meeting of the Council, Mr. M'Donnell reported that at a meeting of the Corporation in committee a minute had been passed modifying the clauses by the striking out of everything except that referring to the heights of buildings. The position was fully discussed at several meetings of the Council, and at a meeting of the Council of the Royal Institute of the Architects of Ireland, at which one of the Ulster Society representatives attended, the matter was fully discussed, and as a result a resolution was passed unanimously recommending that, owing to the modification of the objectionable clauses so as to leave only the question of heights of buildings to be dealt with, that the Council might frame clauses strictly on the lines of those contained in the London Building Act of 1894 relative to the heights of buildings, and also constitute a tribunal of appeal on precisely similar lines to that provided by that Act. The Council, therefore, considered and approved of clauses drawn in this way, which were ordered to be printed in parallel columns with those from the London Act, and, together with a copy of the resolution passed by the R.I.A.I. before referred to, were forwarded to every member of the Corporation. These clauses do not seem to have been considered by the members of the Corporation interested in the promotion of the bill, and from speeches made at a meeting of the Council to approve of the bill generally it was perfectly obvious that some of the Corporators who undertook to deal with the matter in public had not even read them. The bill was approved of, three members voting against, with special reference to these objections. Notwithstanding the minute of the Corporation striking out everything except those portions of the clauses which referred to the height of buildings, the bill, as deposited, retains the whole of the objectionable clauses as described, as well as those referring to the heights of buildings. A letter was received from the secretary of the R.I.B.A., dated January 14, 1902, approving of the resolution passed by the R.I.A.I. on January 6, on the basis of which the Council had taken action. A resolution was unanimously passed by the Council at a meeting on the 16th inst. to the following effect:—"That the Council recommend the Society to petition against Part V. of the Belfast Corporation Bill." Opinion of counsel has been further taken as to our action, and he advises that it would be quite possible for the Corporation, if there were no opposition, to carry through the clauses as in the deposited Bill, notwithstanding the minute of the Corporation in committee, and he suggests that we should ask for a formal guarantee from the Corporation.—Mr. W. J. Fennell then proposed—That a formal letter be addressed to the Town Clerk asking that a guarantee be

given by the Corporation as follows: 1. That all reference to character and design shall be struck out in the Bill in committee on the application of the promoters. 2. That the restriction as to the height shall not be one depending solely on the discretion of the Municipal Authority, but shall be a power confined within limits such as pointed out in the clauses submitted by the Society. 3. That the court of appeal shall be constituted on the lines suggested by the Society. 4. That all amendments for the purpose of carrying out Nos. 2 and 3 shall be submitted to the Society one week before the Bill be read a first time.—This was seconded by Mr. T H. Tulloch, and passed unanimously.—Mr. J. J. M'Donnell, J.P., moved that if a satisfactory reply be not received within two weeks, that it be an instruction to the council of the Society to take such steps as they may be advised to oppose the Bill of the Belfast Corporation before Parliament, and that for such purpose a guarantee fund be now opened.—Mr. N. Fitzsimons seconded the resolution, which was passed.—The Chairman said their President, Sir Thomas Drew, had expressed the wish to be allowed to head the guarantee fund. The Institute of Architects for Ireland had promised to subscribe, and he expected to get authorisation also from the Royal Institute of British Architects.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At a meeting of this Association, in the rooms at 117, George-street, on the 22nd ult. Mr. Henry F. Kerr, the President, in the chair, Professor Baldwin Brown read a paper on "The Dome as an Architectural Form." The purpose of the paper, it was explained, was to bring into view the general æsthetic character of the dome, and more particularly to vindicate for it a place among the architectural forms suited for a Christian church. The main characteristic of the dome in general was its embracing, uniting quality, and it was important so to employ it as to obtain from it its full value as a unifying element in a composition. The employment of the dome as a mere roof, as in the multiplied domes of later Byzantine churches, such as St. Mark's at Venice, or the series of cupolas along a rectangular aisle as in churches of the west of France, was not the way to secure all the advantages of that most beautiful and expressive feature. The dome, wherever it appeared, lent distinction to a building, and it had been rightly pronounced to be on the whole the most satisfying to the æsthetic sense of all architectural forms. The real power of the dome was, however, only exhibited when it was made to exercise an influence far beyond the limits subtended by its own circumference, and brought into harmony the complex elements of a sub-divided plan. The Pantheon of Hadrian at Rome, the starting point of the development of dome construction in the modern world, completely embraced the spaces of the plan it surmounted, but this plan was that of a regular unbroken circle. The Christian builders desired to use the dome for their own purposes; but such a plan as that of the Pantheon was not suited for a Christian meeting-house. One of the most interesting chapters in the whole history of architecture was occupied with various experiments made by early Christian architects to adapt the dome to plans suited to the requirements of congregational worship. Their efforts to overcome the difficulties which presented themselves were sufficient proof that they recognised the dome as a form not only beautiful in itself, but expressive of Christian ideas, and this was a consideration too often lost sight of by the mediævalists of to-day, who, as the discussions connected with the new Liverpool Cathedral had shown, were still dominated by the ideas embodied in the Gothic revival of the first half of the nineteenth century. The efforts referred to were ultimately crowned with success, when the architect of Justinian's Church of Sta. Sophia at Constantinople combined the dome with the rectangular ground plan normal in the Christian meeting house. It was a curious fact that after Sta. Sophia the planning of domed churches retrograded, and small cupolas were multiplied over the arms and intersection of Greek crosses, or distributed like the five on a dominoe over a square. Some later Turkish mosques seemed, however, to show a revival of the Sta. Sophia tradition. Meanwhile, other points of interest in the history of dome construction emerged, the chief of which was the employment of the cupola in later Byzantine architecture, and again at the Renaissance as an external rather than an internal feature. There was a fine field open for the efforts of the modern designer in the direction indicated by Sta. Sophia. The triapsidal plan, that could be effectively combined with a central dome, offered opportunities for experiments, and these might result in a centralised church for congregational purposes, free from the suggestion of mystical sacerdotalism which clung to the mediæval fane, and recalling the glories of some of the early Christian domed structures that had passed away. If architectural students who went to Cologne would shorten their stay in the Gothic Cathedral, and spend more time in St. Mary of the Capitol or the Apostles' Church, some fresh and promising elements might be imparted into the church architecture of the day. Some discussion followed the reading of the paper, which was illustrated by numerous lantern slides, drawings, &c.

WOLVERHAMPTON AND DISTRICT ARCHITECTURAL ASSOCIATION.—The first annual general meeting of this Association was held at the Law Library-rooms, Wolverhampton, on January 16. The annual report of the Council for the year 1901 was read and adopted, and the Treasurer's statement of accounts passed and approved. The following officers were re-elected for 1902:—President, Mr. J. Lavender, F.R.I.B.A.; Vice-President, Mr. G. H. Stanger, F.R.I.B.A.; Council, Messrs. F. Hunter Lynes, A.R.I.B.A. T. H. Fleeming, S. H. Eachus; Hon. Treasurer, Mr. J. Harrison Weller; Hon. Secretary, Mr. W. Edwards (25, Darlington-street, Wolverhampton); Auditor, Mr. W. J. Oliver. The President then gave what appears to have been an exceedingly spirited and sensible address to the members, of which an abbreviated report will be found on another page.

THE LONDON COUNTY COUNCIL.

THE weekly meeting of this Council was held at Spring-gardens on Tuesday, Mr. Torrance, Chairman, presiding.

Loans.—The following loans were granted:—2,730*l.* to the Bethnal Green Borough Council for paving works; 10,455*l.* to Hammersmith Borough Council for electric light installation; 2,050*l.* to Stepney Borough Council for street improvements; and 1,200*l.* to Marylebone Guardians for works at workhouse.

Resignation of the Works Manager.—Mr. McDougall brought up the Report of the General Purposes Committee, which stated that a letter had been received from Mr. W. Adams, the Manager of Works, resigning his appointment. In his letter communicating this decision Mr. Adams wrote:—

"The duties of Manager of the Works Department, under existing conditions, involve so much anxiety, and have been the cause during the past few months of so much nervous prostration, that I feel my continuance in that position can only result in a breakdown of my health, and that the time has arrived when I should resign the appointment. During my five years of office I have done my utmost to secure the success of the Department which I have so much at heart, and only regret that this step should become necessary. The result of the working of the Department from the date of my appointment in February, 1897, shows, notwithstanding the large excess in the case of North Woolwich pumping-station, which is fully explained in my detailed Report, a net balance of only 378*l.* in excess of the estimates and schedule values, being ⅛ per cent. on a total expenditure of 602,329*l.* Personally, I think the results have been very satisfactory, especially bearing in mind the many and great advantages which do not show on paper; and that, with certain modifications in the system, it only needs that other departments should also work loyally for its success for the Works Department to be one of the most gratifying of the Council's undertakings. I leave entirely to the Council to fix the date when I relinquish the position with which they have honoured me, and, if the Council should consider it advisable, I should be happy to remain with my successor until he has become thoroughly acquainted with the requirements and work of the Department."

"'Under the circumstances' (the Committee reported) 'we see no alternative but to recommend that Mr. Adams's resignation be accepted, and we have conveyed to him an expression of our regret on behalf of the Council at his ill-health, and of our hope that a cessation from work will lead to a speedy recovery. We are considering the arrangements to be made consequent on Mr. Adams's resignation, and until we are in a position to report further the Council will no doubt be glad to avail itself of the offer which Mr. Adams has been good enough to make with regard to the date of his resignation, and we therefore propose for the present to leave the date open. We recommend:—That the resignation of Mr. W. Adams, Manager of Works, be accepted as from a date to be hereafter fixed.'"

In the course of a short discussion Mr. Dodson urged that a change in the system of the Works Department was wanted, so as to relieve the Manager of so much anxiety.

Mr. Alfred Smith expressed gratification that the work carried out under Mr. Adams showed a highly satisfactory result as regards cost compared with estimates. The recommendation was adopted.

Electrification for Tramways.—The Highways Committee presented a Report, with estimates for 68,000*l.* and 576,350*l.*, with regard to electrifying a portion of the Council's tramway system in South London, covering a length of 19¼ miles of single track.

The Finance Committee, reporting upon the financial bearings of the scheme, stated that it was proposed to spread the repayment of the 68,000*l.* required for new buildings and bridge construction over the full period of not exceeding sixty years, while the cost (576,350*l.*) of lines, machinery, generating plant, rolling-stock, equipment, and alterations to existing buildings would be spread over twenty-five years. The Committee assumed that the Council would earn a profit on electrical working of 6d. per mile run instead of 2d. per mile on horse traction, or an increase of profit of about 4d. per mile for the 4,700,000 miles per annum at present run, or 78,333*l.* a year. But in addition to this the Highways Committee anticipated that, owing to the increased speed at which the cars would travel and to the popularity of the system, the traffic would increase, and they considered it quite safe to estimate for an increased car mileage of 1,000,000 per annum. This estimate also was supported by the experience of other similar undertakings. On this extra mileage there would be an additional profit (at 6d. per mile) of 25,00*l.*, making a total estimated increase in the profit on working of, say, 103,000*l.* Out of this would have to be paid interest and sinking fund charges on the cost of conversion, which, excluding items relating to the supply of power (covered by the 6d. a mile estimate for working expenses) amounted to 573,500*l.* Interest on this sum at 3½ per cent. would be 18,640*l.*, and the annual charge for repayment (68,000*l.* in fifty-nine years and the balance in twenty-five years) would be 21,373*l.*, making together 40,013*l.*, which, however, would decrease as the debt was paid off. Thus it was evident that the result of conversion would be advantageous financially.

After some discussion on details the estimates presented by the Highways Committee were approved.

The Westminster Improvements.—In connexion with the Westminster improvements, the Improvements Committee submitted a supplemental estimate of 6,750*l.* The Committee pointed out that they were authorised to spend 1,315,000*l.* on capital account for the purpose of extending the Thames Embankment to Millbank. The estimate of the gross cost of the improvement was based upon the assumption that no property would be acquired outside the limits of deviation shown upon the plan sanctioned by Parliament. During their negotiations for the acquisition of the interests in certain properties in Tufton-street and Little Tufton-street within the limits of deviation an opportunity arose for the acquisition by agreement upon favourable terms of the superior interests in adjacent properties in Tufton-street and Romney-street beyond the limits of deviation. The cost of acquiring the freehold interest had been 6,000*l.*, and of the leasehold interest 590*l.*, together with 160*l.* 10s. for surveyor's fees and solicitor's costs, making a total of 6,650*l.* 10s. There would probably be further expenditure amounting to about 100*l.*, and the total estimate which they were submitting to the Council was, therefore, 6,750*l.* It was not anticipated that the acquisition of these properties would involve any increase in the ultimate net cost of the improvement, as the expenditure would be counterbalanced by the value of the site as surplus land. It was necessary, however, for them to submit to the Council an estimate of the amount by which the gross cost of the improvement would be increased, as provision was not made in the estimate already passed by the Council for the expenditure to be in-

curred in respect of the acquisition of these properties.

The Council assented to the supplementary estimate.

Technical Education.—The Technical Education Board, in a Report on the successes obtained by students at their polytechnics, stated that at the Battersea Polytechnic a number of students had secured promotion in the building trades, while twelve at Regent-street had obtained appointments as managers and assistant managers in engineering firms. Several students in the architectural department had obtained important appointments in telegraph, locomotive, shipbuilding works, and Government and municipal offices.

Acetylene Gas.—The Theatres and Music-halls Committee submitted a series of regulations in connexion with the use of acetylene gas. *Inter alia*, they provided that the pressure shall not exceed 20 in. in the generator, or 5 in. in the holder or service pipes; that the gas shall not be mixed with oxygen or with atmospheric air before it reaches the burner; and that every apparatus used shall be licensed by the Council after it has been tested and approved by experts.

The draft regulations were approved.

Architects' Department.—The Establishments Committee reported that Mr. D. W. Kennedy had resigned the position of senior assistant in the Architects' Department. A recommendation that the resignation be accepted and that a successor be advertised for was adopted.

New Police Office on Victoria Embankment.—The Highways Committee reminded the Council that on October 29 last year they acceded, on certain conditions, to a request made by Sir J. Wolfe Barry for permission to erect, and maintain for a period of three months, a hoarding round the site of the proposed extension of the Metropolitan Police office on the Victoria Embankment, and to place a temporary wooden footway along the outer side of the hoarding. The decision of the Council having been communicated to Sir J. Wolfe Barry, he suggested that, having regard to certain of the conditions imposed by the Council, it might be more convenient if the permission to erect the hoarding were to be given to the contractors for the erection of the building rather than to himself, and he accordingly withdrew his application. Messrs. E. Lawrance & Sons, the contractors, had since asked for permission to place round the site of the new buildings a hoarding somewhat longer than was proposed in the original application, but projecting less over the public way, and to place round the hoarding a temporary footway; and the Committee thought that permission may be granted upon the same conditions as in the previous case. They recommended accordingly.

This was adopted.

The Horniman Museum.—The Historical Records and Buildings Committee presented a Report on the staffing of the Horniman Museum. They recommended:—That Dr. A. C. Haddon, F.R.S., be appointed advisory curator at an annual fee of 50 guineas, together with an allowance of 25*l.* a year for travelling expenses; that, subject to his passing the necessary medical examination, Mr. Richard Quick be appointed resident curator at the salary of 300*l.* a year, and Mr. Frank Slade and Mr. Andrew William Pepper natural history assistant and librarian respectively at the salary of 130*l.* a year each.

These recommendations were agreed to, and the Committee added, for the information of the Council, that since the opening of the Museum there had been 184,862 visitors to it.

Arbitration Clauses.—On the motion of Mr. Sears, seconded by Mr. Benn, the Council resolved:—"That it be referred to the General Purposes Committee to consider and report as to the advisability of modifying the arbitration clause in the Council's contracts, so that whilst questions affecting the conduct of the works should remain subject to the sole control and decision of the chief officers of the Council, questions of dispute relating to accounts and claims should be referred to an independent and outside arbitrator, and then only on the termination of the contract."

COTTAGE HOMES, BARNSTAPLE.—A series of cottage homes has been built during the past year on a site opposite the main entrance to the workhouse at Barnstaple. The buildings were designed by Mr. W. C. Oliver, architect, and built by Mr. W. Cooke.

Illustrations.

ILLUSTRATIONS OF RIMINI CATHEDRAL.

IN the *Builder* for May 25, 1901, we gave two illustrations of the interior of this remarkable church, a fourteenth-century Gothic church transformed more or less into a Renaissance one, a century later, by Alberti, at the bidding of Sigismund Malatesta.

The exterior view shows the south side with the classic arcade with which Alberti masked the Gothic architecture, and the sarcophagi in which were deposited the remains of some of the great men whom Malatesta had collected around him.

Another illustration shows a portion of the marble balustrade in front of the chapels, a very fine example of the flat and severe style of early Italian Renaissance carving. In another illustration the decoration of the spandrels of two of the chapel arches is shown.

The sheet of various details of sculpture is a curious assemblage of things which do not seem to belong to the same style or school; the three bas-reliefs of angels especially look as if they belonged to an earlier date than Alberti. It is known that some of the interior decoration consisted of the spoils of other buildings, and probably these bas-reliefs were among them.

CIBORIUM, SAN DOMINICO, SIENNA.

THIS marble ciborium is placed over the high altar in the church of San Dominico, Sienna. It is an extremely delicate piece of work attributed to Benedetto da Maiano. The position in which it is placed makes it difficult to obtain a good point of view, and it is consequently little noticed by visitors. The present sketch was made some height from the ground from the one possible place, which suffers, unfortunately, from the lower square portion of the base on that side being a restoration; on the other three the work is original. The drawing was made *in situ*.

FIRE TESTS WITH AUSTRALIAN HARDWOOD FLOORS AND DOORS.

SOME important tests were undertaken on Wednesday afternoon by the British Fire Prevention Committee, the occasion bringing together an unusually large assemblage of public officials, architects, surveyors, and engineers, including several representatives from the Continent. The visitors were received by Mr. Edwin O. Sachs (Chairman) on behalf of the Executive, and Mr. H. H. Collins (District Surveyor for the City of London) on behalf of the Council, and among those present were Commander Welsch, who had arrived from Ghent on behalf of the Belgian Government, and Major Fox, of the London Salvage Corps, whilst there was also a specially strong representation of the fire insurance offices.

Preceding the general reception, a luncheon was given by the Executive, at which, in the course of the toasts, it transpired that a scheme for utilising the results of the British tests abroad was on foot. Mr. Sachs, Mr. Collins, and Commander Welsch spoke on this subject at some length.

The particular test which occasioned primary interest was that of a large warehouse floor of Karri and Jarrah wood, comprising supports of timber, beams of timber, and a floor of timber, the whole carrying a load of 200 lbs. per square foot, and being subjected to a fire of gradually increasing temperature for a period of two hours up to 2,000 deg. Fahr. Although the fire broke through the floor towards the end of the test in several places, the beams of timber withstood the strain in an eminently satisfactory manner, the load being supported to the very end.

Another test was with Karri and Jarrah hardwood doors of 2 in. thickness, subjected to a similar fire of increasing severity for the period of one hour, when it was observed that the Jarrah door of seasoned material withstood the fire far better than the Karri door, which, however, happened to be of a fresh material.

The tests, which commenced at 12.30 and lasted until 4 p.m., were favoured by exceptionally fine weather, but, owing to the severe frost, the hose-pipes by which water was applied, at the end of the large-floor test, became frozen, and it was a pleasure to see how some men of the London Salvage Corps, who were in attendance on Major Fox, came to the rescue with hand-pumps in their usual smart way.

Books.

Building Specifications. By JOHN LEANING, F.S.I. London: B. T. Batsford. 1901.

WE must believe that there is a demand for books of the kind to which this new work of Mr. Leaning's and Mr. Macey's "Specifications in Detail" belong, which might more properly be called books of instruction on construction of a more advanced nature than the ordinary text-books. They, no doubt, will be found useful by those members of the profession who are just passing from the state of pupilage to that of assistants, or even, as we know many young men are doing to-day, venturing on the troubled sea of independent practice without sufficient ballast of experience. When a man knows how to construct the work which he is to carry out, he does not need any such book as that by Mr. Leaning or Mr. Macey. Books on advanced construction, dealing with problems of a similar character to those that present themselves in every-day practice—the application, that is, of what is taught in text books—are surprisingly few as regards the work of the architectural profession. Mr. Leaning, therefore, has to instruct his readers in the construction as much as in the description of work to be carried out. From this point of view, this new work is one that can honestly be recommended to students, but they should be on their guard not to put into their actual specifications all that they find in Mr. Leaning's descriptions or illustrations. Many, in fact, of the illustrations in the book should be by the young architect shown in his ½-in. detailed drawings, not made marginal notes in the specifications, as, for example, the sketches given of children's galleries for use in schools.

It is a bold thing for any man, even though he be a quantity surveyor, and therefore necessarily possessed of sound knowledge of construction, to venture on a description of so many specialised forms of work as Mr. Leaning has included in his book, and it is very easy to find faults in the descriptions and illustrations which are therein given, as, for example, in the illustration of loophole doors; no cleats are mentioned, although they are in very many cases absolutely imperative.

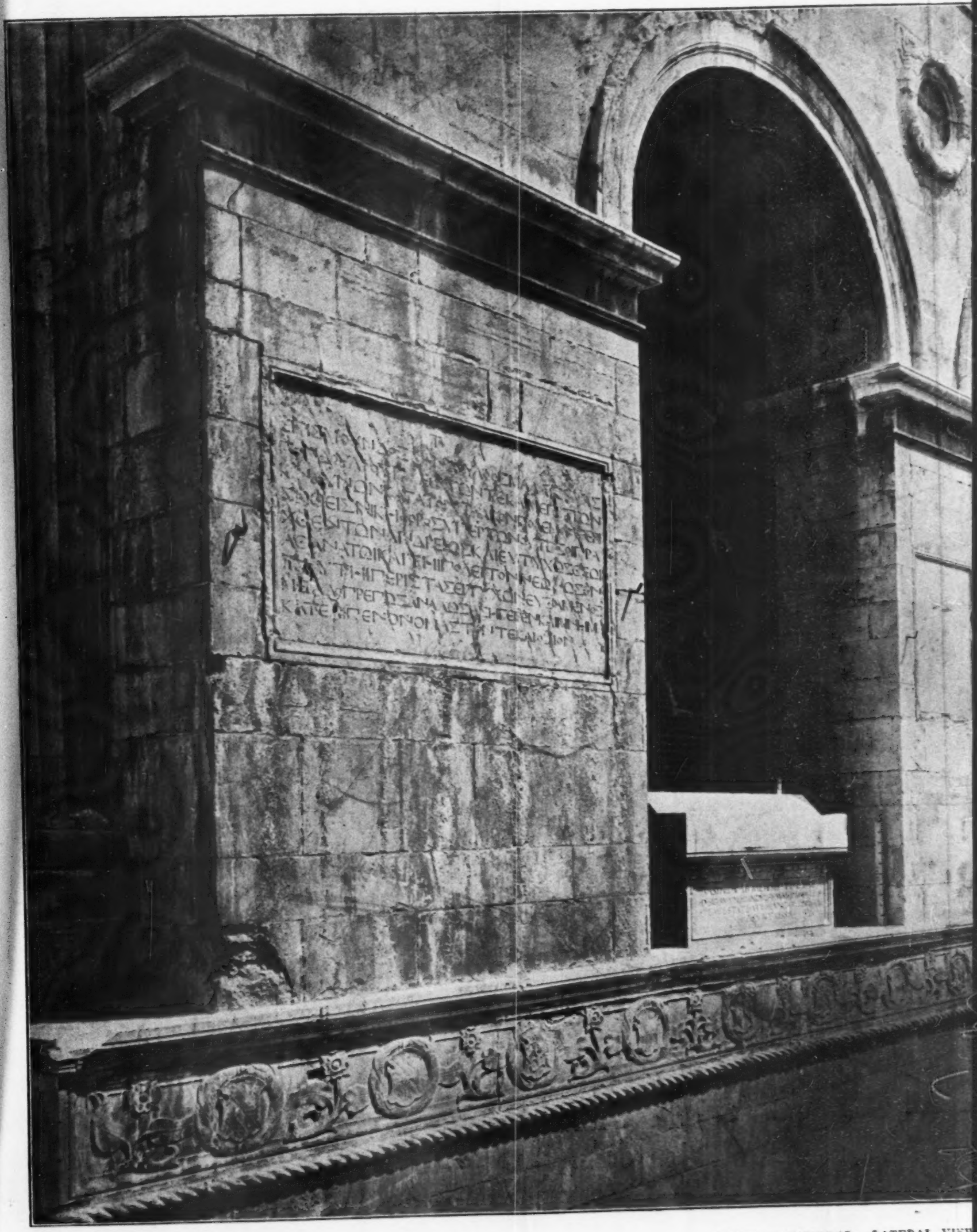
The method described by the author of laying wood blocks in Stockholm tar only, is one that cannot be absolutely relied upon for durability; the section and description of rain water tank is not quite the best form, and is deficient in one or two particulars.

The book, however, is printed with good margins, so that the young architect has the opportunity of annotating, and to make the book thoroughly valuable should use his opportunities of observation freely and make copious amendments, taking nothing for granted because it appears in print, but keeping an open mind and learning by experience, so that, when he comes to have pupils of his own, Mr. Leaning's book, with plenty of added notes, will be very useful to them.

Quantity surveyors are notoriously conservative in their methods of construction, and to this fact we may credit the inclusion of the now, happily, almost obsolete fashion of enclosing a bath with wood framing. The student would do well to run his pen through this portion of the book, and note at the side "Never use this." The same spirit of conservatism probably accounts for the fact that the construction of brick sewers is described, but not of those of concrete.

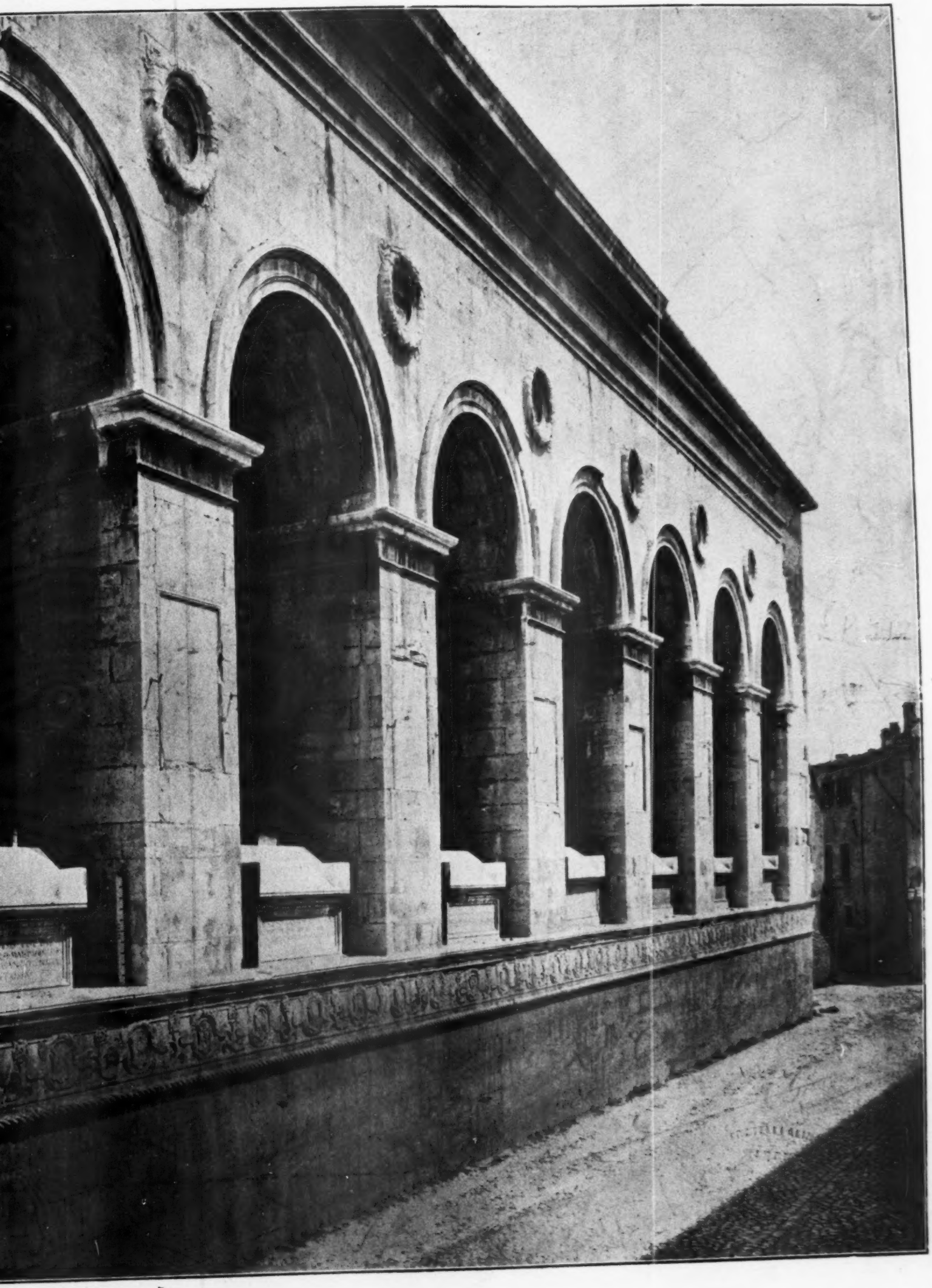
The specification of the precise method of carrying out shoring with rigidly fixed scantlings of timbers and detail drawings is not, save in exceptional instances, the usual practice of architects, although it would be of considerable assistance to the quantity surveyor in measuring "use and waste." Young architects may, however, be warned that such rigid definition would generally add to the cost of work, as a contractor can frequently carry out shoring with the same efficiency, but at less cost, by using material that he may happen to have, instead of being obliged to buy special baulks for the job.

The preparation of conditions of contract is



RIMINI CATHEDRAL: LATERAL VIEW

RIMINI CATHEDRA



CATHEDRAL: LATERAL VIEW.

PILASTER BAS-RELIEF: TWO ANGELS.

BASE OF A PIL

PILASTER BAS-RELIEF: TWO ANGELS.

BASE OF A PIL

RIMINI CATHEDRAL: VARIOUS

SE OF A PILASTER.

PILASTER BAS-RELIEF: AN ANGEL.

SE OF A PILASTER.

PILASTER BAS-RELIEF: "BOTANY."

PHOTO-GRAVURE BY SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

L: VARIOUS DETAILS OF SCULPTURE

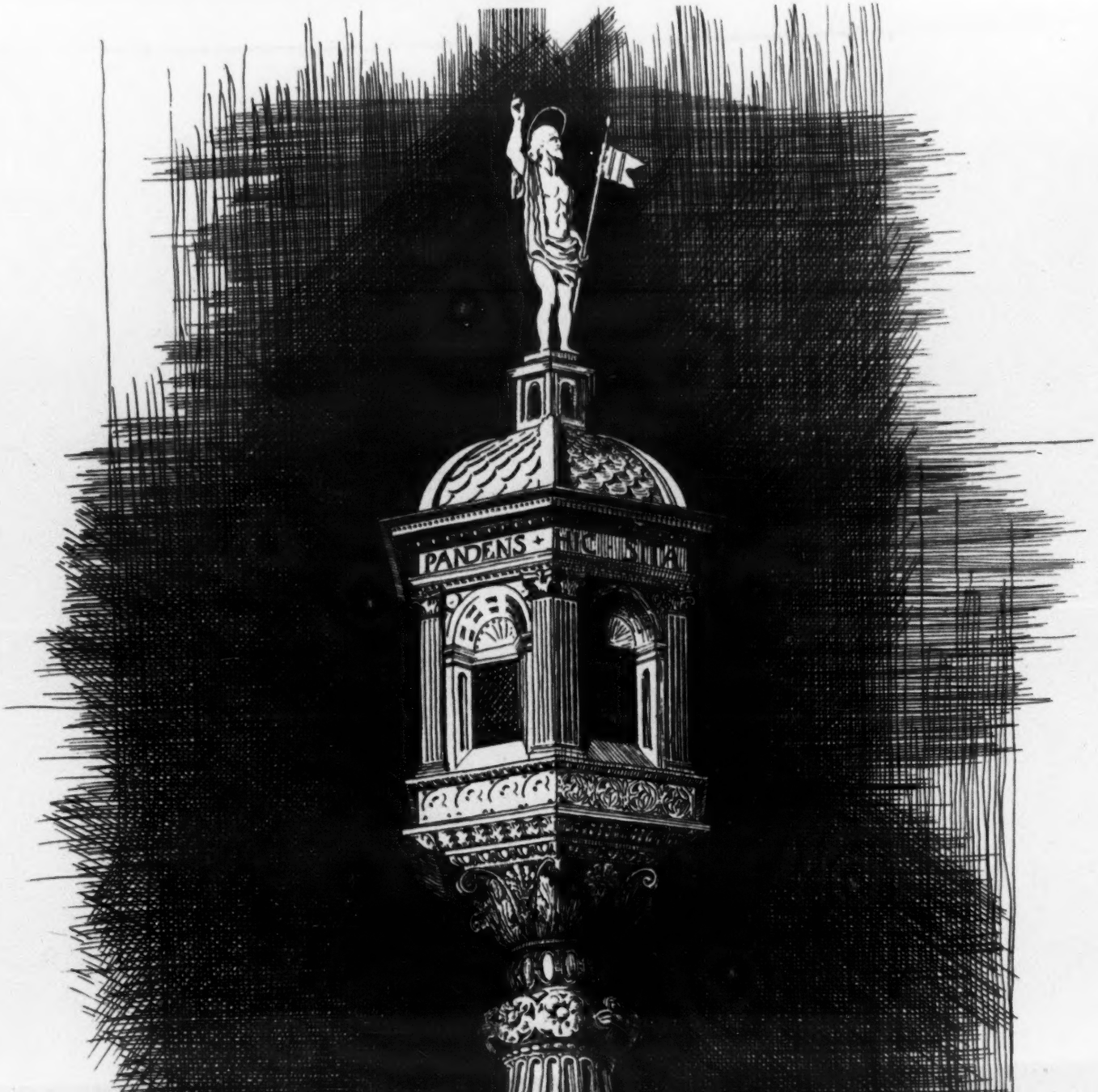

PANDENS

PHOTO-LITHO. SPRAGUE & Co. LTD. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

CIBORIUM IN SAN DOMINICO, SIENNA.—Drawn by Mr. W. Curtis Green.

RIMINI CATHEDRAL: BALUSTRADE IN FRONT OF CHAPELS.

RIMINI CATHEDRAL: PART OF DETAIL OF ARCHES FORMING THE ENTRANCE TO TWO OF THE CHAPELS.

RIMINI CATHEDRAL: BALUSTRADE IN FRONT OF CHAPELS.

well dealt with by Mr. Leaning at considerable length, but we cannot agree with the author's dictum that the conditions should form a part of the specification; they merely increase the number of pages which a foreman has to handle and turn over, and are really very little concerned with his part in the carrying out of the building, so that it is, in our opinion, far better that they should form part of the contract to which they properly belong; and this is a document that many builders make a point of carefully keeping out of the hands of their foremen. The student should be warned that the author's description of fireproof floors must in particular be taken *cum grano*. In particular, as might be gathered from the letter which recently appeared in our columns from Mr. Atkinson, the author's statement that in combinations of iron and concrete "no chemical action occurs between the iron and the moisture in the concrete" is one which recent investigation has suggested—although generally assumed as correct—to be unfortunately fallacious. The sections of fireproof floors shown cannot in all cases be properly so described, and would not even "resist its effects for a long time."

Mr. Leaning seems to think that the quantity surveyor should write the specification, and observes that the proposal has elicited "much virtuous but irrational indignation from those who maintain that the architect should write all his own specifications." There is no occasion for indignation, but we disagree *in toto* with the theory of delivering over the writing of the specification to the quantity surveyor; and in our opinion an architect who does so puts himself in an undignified position, and is apt to lose his grip over the building. Of course we agree that an architect is not to waste his own personal time over writing stereotyped directions which occur in every specification; there should be a lithographed skeleton form for these things, to be filled in with special requirements; but the special requirements should be draughted by the architect, at all events, and written in his office by one of his own staff, if not by himself. The function of the quantity surveyor is to measure and state the quantities, and should be confined to that. Of course, if architects hand over their specification writing to the quantity surveyor, they can hardly be surprised if the latter gets into the habit of speaking of the resulting erection as "one of my buildings," a phrase which we have heard used; and architects who do not like that position will do wisely not to give ground for it by allowing the quantity surveyor to usurp what should be their own function.

Builders' Accounts. By JOHN A. WALBANK, A.C.A. ("The Accountants' Library," Vol. III.) London: Gee & Co., 62, Moorgate-street, E.C. 1901.

THE author of this little work is evidently thoroughly acquainted with the subject he has dealt with, although, as he has placed it before us, it appears to be somewhat academically elaborate; in fact, to such an extent that we doubt whether any firm, however large, would think it necessary to adopt such an intricate system as that here set forth. Builders' book-keeping is necessarily a somewhat complex business, and niggardliness in the book-keeping department is not to be defended in any way. On the other hand, we have known builders who have come to grief through getting entangled in the meshes of a complicated system, thus neglecting the practical side of the business. A formidable list of the books required is given on page 2, and even this would not cover all that would be necessary. We are under the impression that most builders would dispense with a good many of these. Despite the importance attached by the author to the "Register of Tenders," with its elaborate subdivision, we think that most builders would content themselves with merely the lists of tenders sent in. Even were they not content with this, in very few instances would they have the opportunity of comparing the details of the various trades. The author's assertion that it is useful to see "in what respects his [the builder's] tender has been faulty" leads one to remark that, instead of relying upon such support as this, the builder should see that his estimating staff was efficient.

"The foreman's daily return" is, we think, unnecessary, taking up the foreman's time when it might be more profitably employed the usual weekly returns covering all that is necessary. We are sorry to see the author recognising the demoralising system of "subbing" by suggesting a "sub wages cash book." "Subbing" may be necessary to a small extent at the commencement of a job, but it should be discouraged in every possible way by the employer.

In most of the examples of books given the subdivision is too elaborate. The stores books, "Issued" and "Returned," also the "Machinery and Plant Ledger," are not sufficiently insisted upon usually, and the author's advice here may well be followed, as also in connexion with an "Annual Profit and Loss Account," which we fear is not so systematically prepared as it should be. We think in this connexion also the author might have put forward the advisability of having accounts audited annually by a qualified firm of auditors, as well as an annual stocktaking of all plant and materials.

The author, on pp. 55, &c., explains a modified form to meet the case of a "small" builder. We are afraid that, notwithstanding the arguments put forward for the main system (and there is a good deal to be said for the truth of these), many *large* builders will lean towards the modified system, relying to a large extent on the "close supervision" mentioned on page 55. This, after all, is a very important factor in the management of a builder's business.

Although we may not be prepared to adopt all the author's suggestions, for the reasons before given, the work will well repay perusal, and a great many useful hints may be obtained from it to be adopted with discretion.

Lockwood's Builder's, Architect's, Contractor's, and Engineer's Price Book for 1902. Edited by FRANCIS T. W. MILLER, A.R.I.B.A. London: Crosby Lockwood & Son.

WITH the commencement of a new year arrives a procession of annual volumes, some of which we have got to look upon as old friends, while others die at an early age after vainly endeavouring to secure a place in the ever-increasing army of "annuals." Amongst those to be placed in the first class above mentioned is the volume now under notice, which has deservedly taken its place amongst those aids to estimating known as "price books." As the editor says in the preface, last year (whatever it may have been in other fields) was an uneventful one in the building trade; consequently prices have remained almost stationary. It follows, therefore, that this edition, with very few exceptions, is practically a reprint of that of 1901. We are glad to see that what must now be regarded as a permanent fall in the price of bricks has been recognised; 40s. per thousand being now taken as a basis, against that of 54s. for 1901, although there is a little discrepancy in the working out of the prices of brickwork, if we use the note given in the heading. The fall in the price of lead has also been noted. Given a knowledge of the subject at the commencement, this work will be found of use as an aid, but, as we have pointed out before, no price book will take the place of practical experience. This remark, however, will, in a lesser or greater degree, apply to all text-books on professional or business matters.

The Green Slates of the Lake District. By T. MELLARD READE, F.G.S., and PHILIP HOLLAND, F.I.C., F.G.S. Reprinted from the Proceedings of the Liverpool Geological Society. 1901.

THE authors of this pamphlet have done good service, both to architects and geologists, by taking in hand the investigation of the chemical and physical structure of the well-known green slates of the Lake District. They have been materially assisted in their work by Mr. Maynard Hutchings, F.G.S., who gives concise descriptions of the mineral characteristics, chiefly derived from micro-examination, of the several slates referred to. The green slates of Buttermere, Tilberthwaite, and neighbouring localities form excellent roofing material and are largely in request, but the authors remark that from their greater thickness, and consequent extra cost of carriage, they are more expensive to use in Liverpool than the ordinary blue Velenhelli or Penrhyn slates from Wales. "Green slates are to be obtained from Wales, but the area in which the rock is quarried is limited, and the brighter green does not always satisfy the artistic eye. The green slates of the Lake District are essentially made up of volcanic ejectamenta, whereas the Welsh slates, including the green variety, are what are called 'clay slates,' and are of clastic sedimentary origin."

A specimen of Elterwater green slate is described as being about $\frac{5}{16}$ in. in thickness, cleaving with a rather rough surface, but is a good strong material of a grey green colour. It is estimated that this slate contains 12·29 per cent. of calcite, and a portion, after remaining in dilute nitric acid for twenty-four hours, was seen to be covered with little pit marks, the cavities formerly occupied by the calcite, which mineral was removed by the acid. One of the specimens left in the acid for a week did not show any further disintegrative effects. The authors observe that the object of this somewhat severe experiment was to ascertain whether, under the much milder influence of ordinary atmospheric weathering, the slate would be likely to be injuriously affected. It would appear, however, from the mode of distribution of the calcite and its proportion to the total constituents of the slate, that this is unlikely to be the case. Nevertheless, one of the authors who had occasion to have a Tilberthwaite green slate taken off a roof, in order to get the colour matched for an extension of the building, found that the surface exposed to the weather (for about three years) was of a lighter green than the under surface, which in colour matched the newly-quarried slates with which it was compared. We imagine that this change of tint on the weathered surface is in some way connected with the iron, of which the slate contains a great deal.

A Buttermere green slate is described as having a smoother cleavage surface, is deep green in colour, whilst it possesses a glossy micaceous sheen. The slates from this locality are distinguished by the parallel banding due to the difference in the composition or degree of fineness of grain of the bands. The "best dark green," Tilberthwaite (Coniston) slate, quarried by a Kendal firm, is described as excellent for building purposes, being strong, sound, of a good dark green that keeps its colour; the surface is not quite so micaceous as some of the Buttermere slates. Some Welsh slates are then referred to by way of comparison, and the micro-sections, reproduced from direct photographs, are explained. The work concludes with some observations on the origin of slaty cleavage and a table of chemical analyses. We have nothing but praise for this excellent piece of work; the authors have succeeded in compressing into a few pages a considerable amount of valuable information, based for the most part on original research.

The Centrifugal Pump, Turbines, and Water Motors. Third and Enlarged Edition. By CHARLES H. INNES, M.A. 1901: The Technical Publishing Co., Ltd. Manchester.

PREVIOUS editions of this book were devoted to water motors and centrifugal pumps, with introductory chapters relating to the theory of hydraulics. Consequently it was a self-contained and complete treatise on those departments of hydraulic engineering. In the present issue other matter is introduced, which takes away the exclusively hydraulic character of the work, and rather tends to disturb its homogeneity. We quite admit that the new chapters on "Steam Turbines" and "Pans" are useful, and that the theory of such machines is very similar to that of analagous hydraulic appliances, but they could be more satisfactorily discussed in a separate volume, where necessary theoretical principles would be explained fully, and in which would be contained particulars of various steam turbines and motors, and of various types of machines intended to propel or to be propelled by air or gases. A new chapter on the important subject of watermeters would have been welcome, and perhaps, more appropriate in Mr. Innes's book than either of those now added. Chapter XIV., contains a method of designing reaction turbines, which is largely graphical, and is taken from M. A. Rateau's "Traité des Turbo-Machines," and in the chapters relating to centrifugal pumps some drawings and descriptions of pumps designed by the same author are reproduced. These are most serviceable additions and deserve careful perusal. In Chapter XXIII. is a well illustrated account of the Parsons steam

turbine, including some highly interesting tests and other details taken from the minutes of the Institution of Mining Engineers. This chapter is purely descriptive and so differs in character from the bulk of the treatise. Moreover, no attempt is made to discuss other forms of steam turbine or to institute comparisons relating to the efficiency of this type of motor. Two short chapters are devoted to fans, of which the examples given cannot be considered as an altogether representative selection of those made in the present day. Therefore, in this respect as in that of the steam turbine, our preliminary criticism appears to be justified. So far as the hydraulic portion is concerned the treatment is satisfactory and clear, and the work as a whole will certainly continue to be of considerable practical service to engineering students and others interested in the application of hydraulic and kindred machinery.

The Bacterial Purification of Sewage, being a Practical Account of the various Modern Biological Methods of Purifying Sewage. By SIDNEY BARWISE, M.D., D.P.H. London: Crosby Lockwood & Son. 1901.

THIS book is intended as a supplement to Dr. Barwise's excellent little work on "The Purification of Sewage" published nearly three years ago (not *two*, as stated in the preface) It is only a small book, and Dr. Barwise glories in the fact—"One of the evils of books of the present day is that they are infinitely too wordy; a fault, at least, of which this little work is not guilty." The treatise consists of about 16,000 words (equal to the matter contained in seven pages of the *Builder*). By means of large type and black-letter paragraph headings the publishers have succeeded in spreading the text over forty-eight pages, and have given the book an imposing appearance by including in it an equal number of pages of their own advertisements, and by the use of heavy paper and thick bevel-edged boards. The price of the lot is 6*s.* net. The natural exasperation which one feels on glancing through a book thus made up is, however, tempered when it is carefully read. Dr. Barwise writes with knowledge and with a due sense of proportion. The various stages in the bacterial purification of sewage are clearly and succinctly stated, and details are given as to the quantity of sewage, the capacity of tanks and filter-beds, filtering materials, methods of sewage-distribution, rate of filtration, and degree of purification effected. Valuable hints are given as to the methods which will prove most suitable under different conditions.

The illustrations consist of six plates, three full-page diagrams, and two folding diagrams. These last give plans and sections of purification works suitable for populations of 100, 1,000 and 2,000 persons. For the "engineering details" Mr. J. Somes Story, M.Inst.C.E., County Surveyor of Derby, and Mr. George Story, C.E., are, according to the preface, "responsible."

The book contains more information than many a work of twice the size, and can be recommended as an impartial and trustworthy account of modern methods of bacterial purification. The proofs might with advantage have been more carefully read, particularly with regard to the punctuation; and on page 37 the proportionate increase of the area of contact-beds required for two fillings a day instead of three should be 50 per cent., not 33 per cent.

The Water Supply and Sewerage of Country Mansions and Estates. By E. BAILEY-DENTON, M.Inst.C.E., &c. London: E. & F. N. Spon, Ltd. 1901.

THIS little book of seventy-six pages is described as a course of lectures delivered to the students of the Royal Agricultural College, Cirencester, and the South-Eastern Agricultural College, Wye. It is divided into four parts—water supply, sewerage, sewage disposal, and loans. The limits imposed by a short course of lectures have precluded a thorough treatment of these subjects, but the author has succeeded in compressing a considerable amount of valuable information into the space at his disposal. No mention is made of the best types of domestic filters, such as the Pasteur (Chamberland) and the Berkefeld, and some of the author's hints on sanitary fittings are scarcely abreast of modern practice; for example, he considers that short sink-wastes need not be trapped, and makes no mention of traps for the waste-pipes of baths and lavatories. The lecture on sewage disposal is mainly concerned with land treatment, and does not contain any reference to the best modern bacteriological methods of disposal, although these have been adopted for a number of mansions in different parts of the country. The book, however, is full of useful hints, and cannot fail to be of service to the young engineer and estate-agent.

The Continuous Sewage Filter. By F. WALLIS STODDART, F.I.C., F.C.S. Bristol: J. Wright & Co. 1901.

THIS pamphlet of forty pages is primarily an account of the special apparatus invented by Mr. Stoddart for distributing partially-purified sewage over the surface of a percolating filter. A comparison is instituted between percolating filters and contact-beds to the advantage of the former. We have already described Mr. Stoddart's distributor, and need only repeat that it consists of a series of corrugations thus ⌇⌇⌇⌇⌇⌇, with notches cut at intervals in the upper angles, so that the sewage can overflow at a great number of points. The apparatus is already in successful operation, the installations at Knowle and Horfield and at a country mansion being illustrated and described in the pamphlet. Some information as to sewage purification generally is also given, including the quantities dealt with and the chemical and bacterial character of effluents. The pamphlet is worth reading, but Mr. Stoddart ought to have stated clearly that he is the inventor of the apparatus which he recommends.

Elementary Practical Hygiene (Section I.). By WILLIAM S. FURNEAUX. London: Longmans, Green, & Co. 1901. 239 pp., 146 illustrations.

THE author's object in writing this work has been to provide for the student a practical guide to elementary physics and chemistry as an introduction to the study of "Domestic Science." In doing this he has supplied the information required by Section I. of the Elementary Hygiene Syllabus of the Board of Education. The work is divided into forty-one short chapters, and deals with the measurement of length and area, volume, mass, and density, with thermometers and the effects and modes of transmission of heat, with the composition of the air and the elementary principles of ventilation, with elementary chemistry, with coal gas and its uses, with water and some of the substances commonly held in solution by it, with the chemistry of the human body, with food stuffs, including their cooking and preservation, with soap, soda, starch, and other common household requisites, and with disinfectants. The author must be congratulated on having furnished an interesting introduction to this formidable array of subjects. Simple experiments are described, by means of which the student can verify the statements made, and a brief summary of the contents is appended to each chapter. The author writes clearly and to the point, and arranges his matter methodically, and the student will find the book an excellent primer on an interesting and useful subject.

Every Man's Own Lawyer. 39th edition. By A BARRISTER. London: Crosby Lockwood & Son. 1902.

THE most important addition to the new edition of this work is that of the Factory and Workshop Act, 1901, the summary of which will give the reader a general idea of the statutes. The book is as useful as ever, but whether the results of the case law or legislation might not be set out is a question which we think deserves the Editor's consideration. The Workmen's Compensation Act, 1897, is given in what may be termed its skeleton shape, it is practically unknown unless clothed with its flesh of decisions.

Michael and Will on the Law Relating to Gas and Water. Fifth edition. By JOHN SHIRESS WILL, K.C. London: Butterworth. 1901.

THERE is nothing new to be said of this important and valuable book, which is indispensable to practitioners who are concerned with the matters with which it deals. It is in no sense a student's book, but it has in many respects an academical as well as a practical interest, because throughout its pages—in the cases and in the statutes and in the decisions of Parliamentary Committees—is to be found a history of the subject during recent years. The practitioner, be he lawyer or surveyor, will hardly fail to find information on every subject in it. In truth, so well known is this book that a critic of this edition can do no more than announce its appearance, and congratulate the editor upon the satisfactory character of his work.

The Law Relating to Factories and Workshops as Amended and Consolidated by the Factory and Workshop Act, 1901. By WILLIAM BOUSTEAD, Barrister. London: Sweet & Maxwell, Ltd. 1901.

THIS is simply an annotated edition of the new Factory Act, with an appendix which contains some additional statutes, such as the Truck Acts, together with an excellent index. The notes have wisely been kept within moderate bounds, and the book itself is light to handle and turned out in better style than many legal handbooks; but it is published at the absurdly high price of 9*s.*, which will prevent many persons connected with factories from purchasing. When will law publishers learn that books which, though in a sense legal works, are intended for general use should be published at a moderate price?

Practical Exercises in Magnetism and Electricity. H. E. HADLEY, B.Sc. London: Macmillan & Co. 1901.

THIS book is written for pupils in schools of science in connexion with the Board of Education, and ought to prove useful. The book is interesting, and the meaning of the author is always perfectly plain. We think that even the advanced electrician might glance through it with profit to himself, as it is simply marvellous the number of measurements that can be done with the very primitive apparatus described. The work is of distinct educational value, but there are a good many minor points open to criticism. Apparently the boys are to measure resistance without stating the temperature at which they measured it. Again, in the definition of specific resistance no mention is made of temperature. We think also that the method given of measuring the specific resistance of liquids had better be altogether omitted from future editions, as it is quite erroneous. Again, to talk about coils being "in multiple arc" instead of "in parallel" is hopelessly antiquated; and Latimer Clark, the inventor of the standard cell, had no "e" at the end of his name.

Electric Wiring and Fitting. C. V. DRYSDALE, D.Sc. London: R. T. Bush. 1901.

THIS work ought to prove useful to wiremen and others actually engaged in the electrical industry. It makes very little claim on the knowledge of the reader, and the information given is of that practical kind which is too often searched for in vain in more academic treatises. We do not always agree with the author's recommendations. We should be extremely unwilling, for example, to test the working of an ohmmeter by putting our finger on the line terminal when the 500 or 1,000 volt generator is being worked. In his appendix Dr. Drysdale reprints from the "Electrical Trades Directory" the "Rules for dealing with cases of apparent death from electric shock."

Wireless Telegraphy. By G. W. DE TUNZELMANN, B.Sc. London: The Office of *Knowledge*. 1901.

OWING to the extremely rapid manner in which wireless telegraphy is developing, it is too early yet to write a treatise on the subject. There is, however, a great need for an elementary text-book on the subject, and Mr. de Tunzelmann's work will be welcomed by the many electricians who have still very hazy notions about the practical working of this kind of telegraphy. The author is to be congratulated on having given a simple and intelligible account of Lord Kelvin's theory of a rotationally elastic ether and Dr. Larmor's still more abstruse theory of electrons. The serious student will find this book most instructive.

Teignmouth. By BEATRIX F. CRESSWELL. 1901. *Surrey's Capital, Guildford and District.* By J. E. MORRIS. Second Edition. 1901. *Farnham and its Surroundings.* By GORDON HOME. 1900. *Dulverton and District.* By F. J. SNELL. 1901. *A Glimpse of Cranbrook.* By STANLEY MARTIN. Second Edition. 1901. ("Homeland Handbook" Series.) London: The St. Bride's Press.

THESE are handy and well-written guides to their several districts, excellently illustrated with reproductions of photographs, and by drawings by Mr. Gordon Home. All the districts chosen are attractive, the two first mentioned being, however, the richest in architectural subjects. A fine example of a richly carved seat-end is given on p. 99 of the Teignmouth guide, and one or two illustrations of the interesting little chapel at Haccombe, with its tiles, brasses, and Carew and Haccombe monuments. In the Guildford guide Compton Church is well illustrated on p. 101, with its curious chancel and early woodwork. Apart from the interest of its castle, Farnham will be found a good starting-point for exploring the picturesque valley of the upper Wey, and only a short distance away is Waverley, the first Cistercian foundation in England, where excavations have lately been carried out. The Dulverton guide will appeal to those in search of beautiful scenery; to the east, however, is the rich district of western Somerset, full of interest to the archæologist and architect. The volume on Cranbrook forms a good handbook for country walks in a district little known and full of interest.

TRADE CATALOGUES.

THE General Electric Company, of Queen Victoria-street, E.C., have sent us their electric traction telephone circular. Owing to induction troubles, the installation of telephones in feeder pillars along tramway routes is one of great difficulty, and hence, notwithstanding their great convenience, they are not widely used. By careful design of their apparatus, and by the use of twin wires twisted round one another, the General Electric Company have overcome these difficulties. The long list of places published where these telephones are in use prove that they are a great help in the working of electric tramways. All the batteries being kept at the central station, in this system, they can readily be kept in order, and it is a great convenience to have only one pair of wires, as faults can be readily located and extensions will cause no difficulty.

Messrs. Mather & Platt, Ltd., Manchester, have sent us a beautifully-illustrated catalogue of their motors for driving machinery by electricity. Photographs are given of motors driving calico-printing machines, circular saws, pumping machinery, &c. A full list of their standard sizes of steel-clad motors is given. These machines can be provided with gas-proof gauze covers, or can be totally enclosed, so that they are specially adapted for working in factories where the fire risk is "hazardous," or where there are considerable "flyings" in the air. The machines turned out by this firm are very favourably regarded by electricians.

Messrs. Mather & Platt have also sent us another catalogue of their steel-clad motors. Misunderstandings sometimes arise owing to consumers not stating definitely whether they require their motors to be air and water tight or not. It has to be remembered that when a motor has to be hermetically sealed it is very difficult to get rid of the heat unavoidably generated in the armature, and hence its output is very considerably reduced. Eleven standard sizes of motors are given, covering all powers up to 85 brake horse-power, and a considerable variety of speeds and voltages is also given. All the parts of the motors are made in stock sizes, and are interchangeable, and it is stated that any sized machine can be delivered from stock on the shortest notice. We are glad to note this evidence that considerable progress has been made in the "standardisation" of electrical plant.

THE GRISSELL MEDAL.—In our list of the Institute prize winners last week the subject of the Grissell Medal was erroneously given as "A Timber Foot Bridge." The mistake was not ours; it was so furnished to us in the Institute list, last year's subject having been given by an accidental oversight. The subject this year was "A Roof for a Picture Gallery, in Iron, Concrete, and Glass."

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council on Tuesday dealt with the following applications under the London Building Act, 1894. Unless otherwise stated, consent was given on conditions. The names of applicants are given between parentheses :—

Lines of Frontage and Projections.

Hampstead.—The erection of buildings, with shops on the ground floor, and of buildings, with porches and bay windows, on a site bounded on the north and west sides by West-end-lane and on the east side by Honeybourne-road, Hampstead (Messrs. Boehmer & Gibbs on behalf of Mrs. E. J. Cave.—Consent.

Lewisham.—A two-story addition at the rear of 30, Burnt Ash-road, Lee, to abut upon Tauntonroad (Messrs. G. Bush & Son on behalf of Mr. A. Fish).—Consent.

Islington, North.—An iron and glass shelter at the Holloway Empire Palace, to abut upon Holloway-road and Manor-gardens, Islington (Mr. F. Matcham on behalf of Mr. O. Stoll).—Consent.

Strand. — An office building on the site of 62, 63, 64, and 65, Charing-cross (Mr. G. R. Julian on behalf of the Canadian Pacific Railway Company).—Consent.

Width of Way.

Bethnal Green, South-West.—Building, to be used as a fermenting-house, on the south side of Bath-street, Bethnal Green, at the corner of Lisbon-street, with the external walls of such building at less than the prescribed distance from the respective centres of the roadways of those streets (Messrs. W. Bradford & Son on behalf of Messrs. Mann, Crossmann, & Paulin, Limited).—Refused.

Width of Way and Lines of Frontage.

Strand.†—Building on the site of 19 and 20, Bateman-street, Soho, with the external walls of such building at less than the prescribed distance from the respective centres of the roadways of Bateman-street and Bateman's-buildings (Mr. H. A. Woodington on behalf of Mr. B. H. Lynch).—Consent.

Formation of Streets.

Lewisham.—New street for carriage traffic, to lead from Perry-vale to Trilby-road, Forest Hill, and in connexion therewith the widening of a portion of Perry-vale (Mr. D. G. Horlock).—Consent.

Islington, South.—New street for carriage traffic in continuation of Pleasant-place, Essex-road, Islington (Mr. R. Nevill).—Refused.

Width of Way, Space at Rear, and Height of Buildings.

Islington, South.—Five houses on the west side of a proposed new street in continuation of Pleasant-place, Essex-road, Islington, with the external walls of such houses at less than the prescribed distance from the centre of the roadway of the proposed street, the buildings to exceed in height the width of such street, and a portion of the buildings to extend above the diagonal line (Mr. R. Nevill).—Refused.

*** *The recommendations marked † are contrary to the views of the local authorities.*

STAIRCASES IN PUBLIC BUILDINGS.

ROWTON HOUSES, LTD., *v.* CROW.

ON Monday last, January 27, the Tribunal of Appeal gave their decision in this matter, which had been heard by them on Tuesday, January 21.

The facts of the case, which were set forth in our report of the proceedings last week (see page 92), were briefly these :—

In the Rowton House, Fieldgate-street, Whitechapel—now approaching completion and designed to accommodate 800 men—there are three open well staircases, the steps of which are made in moulds, with coke breeze and cement in the proportion of 3 to 1, the upper surface, forming the tread and nosing of the steps, about 2 in. thick, being formed of granite chippings and cement in the proportion of 2 to 1. Embedded in the breeze concrete are two 1½-in. by 1½-in. angle irons. The landings are of similar materials, but have 3-in. by 3-in. steel joists embedded in them in lieu of angle iron. The steps are spandrel in section, with square ends pinned 9 in. into the walls. The width of the stairs is 4 ft. 6 in. Each step is rebated to the one below and jointed in cement, and the outer ends of the steps are unsupported.

The District Surveyor, Mr. Arthur Crow, F.R.I.B.A., raised an objection to this form of construction at the time the plans were submitted to him some two years ago, and in the absence of any suggestion from the company's architect, Mr. Harry E. Measures, F.R.I.B.A., for strengthening the staircase, he served a notice on the company requiring them, under the powers vested in him by Section 78 of the London Building Act, 1894, the building coming within the definition of a "public building," "to provide steel strings under the unsupported ends of the stairs throughout the building" in accordance with his repeated written request. From this requisition the company appealed to the Tribunal of Appeal on the ground that "the method of construction adopted was adequate in every respect for the purposes intended."

In support of this contention evidence was given by Mr. Measures, the architect, and by Mr. G. J. Earle, the company's building manager.

In order to test the strength of the staircases one of the flights, containing ten steps, had been loaded with 2,000 glazed bricks, weighing 8 lbs. each, giving a total load of nearly 7½ tons, or over 14 cwts. per step, which, together with the weight of the steps (nearly 2 cwts. each), was equivalent to a dead load of 16 cwts. per step. Upon examination of the flight after some forty-eight hours it was found that the plaster soffit was breaking away at the point where the upper step abutted upon the landing, and that the joint between the step and the landing had opened throughout nearly its entire length. So far as could be seen there was no fracture in either the steps or the landing, and, with the exception of the damage to the plaster soffit and the open joint, the flight appeared to be sound. No steps, however, had been taken to ascertain the extent of the deflection which had taken place. It was stated that the flight was shored up during the process of loading, and, with the exception of about half an hour whilst a photograph was being taken, the shoring was left in position, but with the wedges either loose or just hand-tight.

Mr. Crow, in his evidence, dealt with the evils which were likely to arise from the employment of two different mixtures of concrete in the same step. The greater density of the granite, coupled with the larger proportion of cement used in forming the tread of the step, would be likely to cause a greater expansion than would take place with the breeze concrete forming the body of the step, and a want of complete homogeneity would ensue. This evil was accentuated by the close proximity of the upper flange of the angle irons to the line of junction of the two different kinds of concrete, and further by the greater expansion and contraction which would take place in the iron, due to variations in temperature. After deprecating the use of coke breeze as an aggregate for concrete when required to withstand a severe transverse strain, Mr. Crow went into his calculations of the load which in time of panic the steps might have to carry. He allowed three men to each step, and assumed the average weight of each man to be 11 stone. This gave 4¼ cwts. As, however, the mass would be in motion, the load must be doubled to obtain the equivalent live load, making 8½ cwts., which, together with the weight of the step (2 cwts.), would give a total of 10½ cwts. for each step. He then dealt with the question of the factor of safety, and suggested that, with such uncertain conditions as existed in a step composed of the various materials described, the factor of safety should not be less than five or six, which would give at least 50 cwts. as the breaking load for which each step should be calculated. He drew attention to the fact that the test actually applied did not nearly approach this figure, being in fact little more than half as much again as the load which might be placed upon the steps in time of panic. He suggested that the deflection which had taken place under the test, as shown by the cracking or opening of the joint, indicated that a sufficient margin of stability had not been allowed. The provision of steel strings would convert each step from a cantilever into a small girder and thus materially increase its strength.

After a very careful inspection of the staircases by the members of the Tribunal (Messrs. Penfold, Hudson, and Gruning), particular attention being paid to the flight of steps which had been subjected to the test described, Mr. Penfold stated that the Tribunal had with considerable regret come to the unanimous conclusion that the staircases were faulty in construction. They were reluctant to come to this decision on account of the general excellence of the work shown in the rest of the building. They directed that further steel joists be placed under each of the main landings, and that bent steel strings be carried from thence under each flight of steps and under the quarter-space landings, and the ends pinned into the external walls. The details of the steelwork would be subject to the approval of the District Surveyor, with leave to the company to apply in case of a further difference arising.

Mr. Hudson expressed his opinion that the margin of safety allowed in the present case was not nearly sufficient, and pointed out that considerable allowance should be made for the uncertain action of Portland cement. Even when the greatest care had been exercised in the manufacture, and proper precautions taken for cooling, the carelessness of a workman in mixing the cement might cause serious latent defects.

Mr. Gruning strongly condemned the system of using coke breeze for the body of the step, with a facing of granite chippings and cement. Concrete steps should be absolutely homogeneous, and in this respect he looked upon an iron core as a source of weakness rather than strength, the oxidation and expansion of the metal tending to cause disruption of the materials. He would prefer steel wires embedded in the concrete.

Correspondence.

SOME SUGGESTIONS AS TO COMPETITIONS.

Sir,—Will you afford me space for a few observations upon competition designs, and some suggestions for relieving the strain of their cost to competitors?

In spite of a rather general reprobation of the system, it admittedly possesses advantages, especially to the younger members of the profession. In any case it will endure, and we have to make the best of it. Of the several objections which can be raised to it, there is no doubt that the one which is most felt is the great, and as I think unnecessary, expense, constituting a serious tax on a profession which, taken as a whole, is far from being overpaid. Surely the first and most enduring impression after a survey, however casual, of the designs in an average competition is that of wasted effort and expense. A rough calculation invariably shows that the total cost of the designs nearly equals, if it does not exceed, the commission which will be earned by the successful competitor alone. To no one is this more obvious than to an assessor, whose duties compel him to examine the drawings carefully. The pity of it is that by far the largest part of the expense is absolutely unnecessary, and far from enhancing the competitor's chances.

Much of the elaboration of drawings is no doubt due to a desire to impress the assessor or promoters. Yet a little consideration should show us that the very extent of an assessor's work imposes limits upon the amount of detail to which he can give attention. Often, indeed, the main effect of elaboration is to confuse the broad features and lines of the plan, which claim his notice more than small matters of detail. Generally speaking, the cleverest designs are more often than not the simplest and least elaborate. The genius of architects shows itself in their true perception of what are essential and what unessential features, and a realisation of the fact that detail should be kept quite subordinate to general arrangement. Add to these matters a wise selection of colours calculated to catch the eye, yet so harmonised or contrasted as (without offending taste) to focus attention upon the principal features of the scheme.

Unless the conditions of competition ask for them, it is quite unnecessary to show drainage, gas and water pipes and fittings, details of roof and floor construction, always provided that there is nothing out of the ordinary intended.

It tends to keep the plans clearer if the names of the rooms are printed in the centre, and with sufficient boldness to stand out from detail information. Dimensions of rooms should be figured just below the names of rooms.

If colours are not particularly specified in the conditions, it is effective to employ two only on the plans, one to indicate rooms and the other passages, staircases, and other means of communication. Elevations should be coloured in flat washes to indicate materials, but are best left unshaded, or if shaded at all, only with broad washes. A "faked" elevation is dishonest and does not help a competitor. Sections should be coloured with a flat wash.

In mounting drawings it is well to have a dark border, which has a tendency to confine the gaze within its borders; a small matter, but not to be despised.

In short, everything that can be done to assist the assessor in grasping easily and quickly the broad lines and best features of the design is a point in favour of the competitor. Everything that obscures essentials discredits the whole. It should be added, however, that attempts to deceive or mislead are, or should be, fatal.

A set of drawings prepared on these lines should cost comparatively little for draughtsmanship. Any cost a competitor is put to in looking up his subject, or even in planning the building, is not thrown away. Indeed, it is well invested, and has gone to increase his general knowledge. Assessor.

THE ARCHITECT'S USE OF ENAMELLED TILES.

Sir,—In your Note on the architect's use of enamelled tiles, you urge that "colour, and the desire for it, go with regions of strong sunshine," and rather wonder why it should be so, and why those who live in a dull atmosphere do not try to make their buildings bright with colour. But may not the facts of the case bear another interpretation? It is true that the dwellers in hot countries—India, Persia, Syria, Africa, and Spain—have surrounded themselves with masses of strong colour in a way that the dwellers in less glaring lands have not done; or rather, where they use colour, they lay it on with greater freedom and brilliancy; but the reason, I think, is this. These countries, except for the short period of spring, are countries in themselves without colour. The sky is too blinding to be gazed at, what vegetation there is gets withered up or dust covered, the world is a grey world, hot, dry, and colourless. But the hunger and thirst for colour is universal. So by means of carefully-tended gardens, running water, tiled wall surfaces, and beautiful hangings, the parched inhabitants of these arid countries endeavour to reproduce, in their immediate surroundings, that wealth of colour that is universal with us outside our towns.

That their scale in colouring should be different to ours, follows out of the nature of their circumstances. In our country we are never without colour, and the seasons are busied in providing us with a chain of fresh glories, melting into and blending with each other by incessant and subtle gradations. In the East, man (except for brief seasons) has to make his colour. Outside our towns and our ruined suburbs an architect has no occasion to use (externally) coloured materials other than what the site itself affords. But in our towns the case is different. There we have constructed a blank colourlessness, which our trees and parks and gardens can only mitigate in part; and they are at this disadvantage, that, thanks to the atmosphere which we have compounded, they can neither breathe properly nor keep themselves clean, and the season of vegetation is curtailed by the corrosion of our air. It is in the streets then, of our manufacturing towns such as London, Leeds, Manchester, and so on, that an external treatment in colour would seem to be called for, and to enable this colour to be permanent and successful, it would have to be in such materials as enamelled tiles and glazed terra-cotta. Nor would the reflections from such surfaces be of so much consequence as seems to be anticipated. Already about one-third of a house front has a glazed surface, by its windows, and these are kept clean and polished far more often than the rest of the front would be, were it plated in tiles. And yet the sheen from the windows is rarely a discomfort, and often a comfortable and interesting effect. There is a corner house in Oxford-street, near Soho-square, that is covered in tiles, and I have never been fortunate enough to get a sunset to make a conflagration upon it, though I have seen its windows lit up. Halsey Ricardo.

BUILDING CONTRACTS.

Sir,—I was much interested in the Note in last week's issue, on "building contracts"; but there is one point upon which I should be glad to have some further information.

In the course of his judgment the Master of the Rolls said in effect (if I read the matter aright), that a builder, when dealing with P.C. sums and ordering goods to be paid by them, acted as agent of the owner, and that he was not personally liable unless he distinctly stated that he, and not the building owner, was the principal in the transaction.

Now, I should have thought that the converse of this would have been true:—*i.e.*, the builder when ordering goods would have been personally liable, unless he distinctly stated that he was acting as agent only and disclosed the name and address of his principals. For you remember that not long since a firm of architects was let in for a large amount through ordering goods on behalf of a client, but without definitely stating that they were agents and not principals. This view is not unreasonable, I think, when one bears in mind that builders are dealing with large sums of money, generally as principals and seldom as agents, and that architects dealings with large sums of money are always as agents.

I had thought that at last I knew the legal position of P.C. amounts, but after this judgment of the Master of the Rolls I am getting confused again.

Can any of your readers help me? K. L.

[**** We are inclined to think that our correspondent is taking a broader view of the dictum of the Master of the Rolls than the judgment or our commentary on it warrants. The builder is agent only in respect of the goods specially exempted from the general range of the contract. The judgment should be read *in extenso*.]—Ed.

The Sanitary Institute.—The annual congress of the Sanitary Institute will be held at Manchester, September 9-13. President: The Right Hon. the Earl Egerton of Tatton. Section I., "Sanitary Science and Preventive Medicine," will be presided over by Sir J. Crichton Browne, M.D.; Section II., "Engineering and Architecture," by Sir Alexander Binnie; Section III., "Physics, Chemistry, and Biology," by Professor A. Sheridan Delépine. Eight technical conferences will also be held in connexion with the congress.

The Student's Column.

PART II.—DRAINAGE.

Chapter 5.—Sewage—The Nature of Sewage.

Sewage may be defined as a foul liquid. It consists of water and solid matters of various kinds (in solution and in suspension). The principal sources of pollution are the waste products of animals (including man), the domestic operations of cooking and washing, trade processes, the mud and filth of streets and yards, and refuse of various kinds, such as paper, rags, and straw. In addition to what may be called service-water, sewage contains always some proportion of rain-water and usually of subsoil-water.

The composition of sewage varies in different towns and districts, chiefly in consequence of the difference in the staple industries. The impurities in domestic sewage are, however, fairly constant, but diluted in different degrees according to the amount of service-water used, the rainfall, and the quantity of subsoil-water admitted to the drains. The presence or absence of water-closets makes very little difference in the composition of sewage.

The odour of fresh sewage is scarcely perceptible. It is only when decomposition takes place that the odour becomes objectionable. The chemical composition of sewage and the nature of the changes which it undergoes before its final purification, will be more conveniently considered in Part iii. Suffice it to say here that the object of all drainage ought to be to convey foul liquids to the sewers as quickly and thoroughly as possible, so that they will neither escape from the drains, nor have time to decompose during their passage through them. Changes will, however, occur in their passage through long sewers, and objectionable gases will be evolved. To prevent these gases finding their way into drains, intercepting traps must be placed in the drains as near the points of connexion with the sewers as possible.

In addition to inorganic impurities, sewage contains minute vegetable organisms collectively known as micro-organisms or bacteria. These may be beneficent in their action, facilitating the final purification of the sewage, or they may be of a dangerous character, known as pathogenic or disease-producing. The disease-germs most commonly present in sewage are those contained in the evacuations of animals and man, and if water or food contaminated with them is taken into the human system, specific diseases may be caused. It is therefore necessary that drains and sewers should be watertight, so that water-supplies will not be contaminated.

Sewage-Polluted Air.—It has been found by observation that the air of sewers contains fewer bacteria than the air of inhabited buildings or of streets, but sewage-polluted air may nevertheless be very harmful. Sore throats, diphtheria, diarrhœa, typhoid fever, and other diseases, have been attributed to it, but the exact relation between foul air and disease is yet obscure.

There are fashions in medicine as in dress, and at one time it was considered that air polluted with the emanation from sewage had a direct poisonous effect on those breathing it. To some extent this is true; unventilated sewers may contain a proportion of carbonic acid and other gases sufficient to overpower any person entering them. At another time it was held that the germs in sewer-air were the principal cause of the diseases attributed to it. This is a theory difficult to prove, but may also be accepted as at least partly true. It must not be forgotten that foul air may have a twofold action—it may be inhaled and so affect the throat and lungs, or it may pollute water, milk, and other foods, and so affect the digestive organs. A less positive theory is that sewage-polluted air lowers the vitality of persons breathing it or partaking of foods which have been subject to its influence, and thus renders such persons more susceptible to certain diseases.

Whatever theory the architect may accept does not very much matter. The main fact to be borne in mind is that emanations from sewage—especially stale sewage—are harmful, and this fact must have its due influence on the design of drainage systems, and particularly on the location of the inlets and outlets provided for ventilation, and on the construction of drains in or under buildings.

The Quantity of Sewage.—Three principal factors must, as a rule, be considered in determining the quantity of sewage likely to be discharged from a given domestic building and its appurtenances—(1) the water-supply (its nature and quantity); (2) the rainfall (its maximum intensity and the proportion which will probably find its way to the drains); and (3) the subsoil-water (if this is allowed to enter the drains).

1. *Water Supply*.—The quantity of water used for all domestic purposes varies according to the ease with which the water can be obtained, and the class of house. In rural districts where the water has to be carried in "long tins" (perhaps for hundreds of yards), the cottager will probably be content with a supply of 2 or 3 gallons per day for each member of his household. The labour of pumping water also, in many cases, restricts the quantity used. In towns, the daily water supply in this country averages about 25 or 30 gallons per head, but this includes the daily proportion per head of the water used for street watering, trade processes, public baths, &c. In some towns the daily supply exceeds 100 gallons per head. These figures are of little use as a guide to the quantity of sewage produced in domestic buildings.

According to Parkes, 12 gallons per person may be regarded as a fair allowance for middle-class households, not including plunge-baths and water-closets. The amount is made up as follows :—

	Gallons daily per person.
Cooking	·75
Fluids as drink (water, tea, coffee)	·33
Ablution, including sponge-bath of 2½ to 3 gallons	5
Share of utensil and house-washing	3
Share of clothes (laundry) washing (estimated)	3
Total (say).....	12 gallons.

The quantity of water required for water-closets varies according to the usage of the closets and the capacity of the flushing cisterns. The latter may deliver from 1½ to 2½ or 3 gallons at each flush, and as modern closets serve frequently as urinals and slop-hoppers, there are probably three or four flushes per person daily—that is to say, on the average from 6 to 8 gallons.

The quantity required for baths can only be roughly estimated. In many houses the daily plunge may be enjoyed by nearly every member of the family, while in others it is almost unknown. If the water-supply is limited, the bather economises by using a smaller quantity of water for each bath. A common allowance is thirty gallons for each adult bath, but the quantity may range from about twenty to fifty or sixty gallons. For poor-law schools the calculation must be based on two baths weekly per child, but the quantity of water required will depend very largely upon the type of bath in use. A skeleton spray-bath requires much less water than an ordinary plunge.

Allowing 10 gallons daily per person for water-closets and baths in middle-class houses, and the same quantity for drinking, ablution (exclusive of baths), kitchen and laundry requirements, and house-cleaning, we obtain a daily total of 20 gallons per person. To this the quantity required for daily plunges must be added. If we have a middle-class household of eight persons, and allow for two daily plunges, the total quantity of sewage may be roughly estimated to be (20 gallons × 8) + (30 gallons × 2) = 220 gallons. A 3-in. drain-pipe with a fall of 1 in 30 would, if running full, discharge this quantity in less than five minutes. Obviously the *quantity* of the sewage proper does not necessitate large drain-pipes.

The *daily* flow is, however, of little use as a guide to the size and inclination of the drains. During certain hours of the day, the volume of sewage produced is much larger than at other times, and calculations for *sewers* are generally made on the basis of half the daily flow being passed into the sewers in six hours. In isolated buildings, however, no average of this kind is of the slightest use. The maximum flow must be considered, and this will occur (as far as the sewage proper is concerned) on the simultaneous discharge of the waste water from a number of sanitary fittings—say a bath, water-closet and sink. Even in this case the maximum flow will probably not exceed 1½ gallons per second.

The flow of sewage from stables is generally estimated to be from fifteen to twenty gallons daily per horse, but this quantity will often be exceeded when two or more carriages are in use. Ten gallons per head daily are usually allowed for cows.

II. *Rainfall*.—The rainfall varies widely in different parts of the country, and also in different parts of the same district. Speaking broadly, the mountainous portions of Argyle and Inverness (including the Isle of Skye), in the west of Scotland, the greater part of the English Lake District, the mountains of north and south-east Wales, and the mountains of West Galway, have an annual rainfall exceeding 80 in.; the remaining westerly portions of the British Isles, with the exception of the principal estuaries and some sheltered places, have an annual rainfall of 40 in. and upwards; the rainfall in the easterly portions of the islands is less; in the south-east portion of England, from the Humber to the Thames, excluding the higher grounds in Lincoln and Norfolk, it is only about 22 in. or 25 in. per annum.

In the preparation of sewerage schemes a knowledge of the local annual rainfall is absolutely necessary, and in the case of isolated buildings, it is also desirable. It is still more important, however, to ascertain the greatest intensity of rainfall. This varies, of course, in different localities, and occasionally amounts to upwards of half an inch in five minutes. This rate, however, is not maintained for many minutes. One of the heaviest rainfalls yet recorded in Great Britain occurred at Lednathie, in Forfarshire, during a thunderstorm in June, 1887; no less than 2·24 in. fell in forty minutes. On October 3, 1890, 7½ in. of rain fell at the Ben Nevis Observatory during the twenty-four hours.

Calculations based on a maximum intensity of 1 in. in a quarter of an hour may be regarded as sufficiently safe for all practical purposes. The amount of rain falling on a surface of 100 sq. ft. will be (at this rate) 8½ cub. ft. in a quarter of an hour, or very nearly 3½ gals. per minute.

Some portion of the rainfall is, of course, absorbed by the surfaces on which it falls, but in the case of roofs and paved or asphalted yards or roads, the amount absorbed is two small to be taken into consideration. Gravel paths and macadamised roads admit of a certain amount of percolation, and a reduction of about 25 per cent. may be made in respect such surfaces.

3. *Subsoil Water*.—The amount of subsoil water in a given piece of ground can only be ascertained by actual test, and this point need not, therefore, be elaborated. As a general rule, it is best to exclude subsoil water from the sewage-drains.

GENERAL BUILDING NEWS.

CHAPEL, CHYANGWHEAL, NEAR ST. IVES, CORNWALL.—At Chyangwheal, near St. Ives, a new chapel in connexion with the New Connexion Society was opened on the 13th ult. The building was designed by Mr. Hill, architect, of Redruth, and was erected by Mr. R. H. Pearce, builder, of Chyangwheal.

PARISH CHURCH, LOFTUS, YORKSHIRE.—On the 21st ult., the Lord Bishop of Beverley visited Loftus and consecrated the new chancel and rededicated the parish Church of St. Leonard. On the foundation of a still older church, the one now reconstructed was erected at the beginning of last century, and comprised a simple oblong building, with a flat plastered ceiling and a small recess at the east end for the altar. A new chancel, 33 ft. long has been added, with organ-chamber, choir and clergy vestries, and heating-chamber. The old roof has been removed, the walls raised, a stone arcade erected forming a nave and north aisle, and the length increased. A new clearstory, with traceried windows, has been formed, and new windows and buttresses put to the aisle walls. A low west tower and porch and the west gable are yet to be completed, as funds permit. In the new completed building there is no chancel arch. The open panelled timber roof, which rises from heavy moulded cornices on each wall, is continuous from west end to east, the chancel gable being completed by a large traceried window of ornamental design. New open seats have been put in, and oak chancel fittings and pulpit. The walls are panelled round with a high wooden dado. The floors are of solid wood blocks laid on concrete. The works, which have cost about 3,000*l.*, have been carried out by Messrs. Bastiman Bros., contractors, of Middlesbrough, from the designs and under the superintendence of Messrs. Clark & Moscrop, architects, of Darlington.

MISSION CHURCH, TIVERTON.—The memorial stone has just been laid of a mission church in the district of Elmore, in St. Peter's parish, Tiverton The building, which has been designed by Mr. W. E Williams, will consist of nave, transept, chancel, schoolroom, and porch in the late Gothic style. It is to be 50 ft. long by 20 ft. wide, and will be built of Pinhoe bricks, with red rubber arches, Bere stone windows, and Broseley tiled roof, with Boyle's turret ventilator. The chancel will be separable from the main building with curtains, and the nave can then be used for meetings, concerts, &c. There will be accommodation for about 180 persons. The work is being carried on by Messrs. R. Grater & Sons, under the architect's supervision.

SCHOOL, MANSELTON, SWANSEA.—The new Manselton Board School was opened a few days ago. The architect of the building was Mr. Lawrence, and the schools have been erected at a cost of some 23,500*l.* The accommodation provides for 1,200 (400 each department).

BETHNAL GREEN WORKHOUSE.—The Bethnal Green Board of Guardians have resolved to remodel their workhouse in Waterloo-road, E. This will necessitate among other work the provision of a site for new casual wards, alteration and enlargement of dining hall and the reflooring and reseating of same, the provision of new kitchens and store-rooms, the erection of a new wing for 100 female inmates, also new bath and lavatory buildings and modern padded rooms. Mr. W. A. Finch is the architect.

DRILL HALL, DURHAM.—A new drill hall, with recreation-rooms and the necessary accompaniments for a Volunteer depot, has been erected in Durham City, the headquarters of the 4th V.B. Durham Light Infantry. The new hall is erected on the site of the old Co-operative Soap Works, where space, giving a frontage of 72 ft. to the street, and extending back for 300 ft., has been secured. The front elevation is of clean chiselled stone, and a corridor, 12 ft. wide and 72 ft. long, leads to the hall, an apartment 104 ft. long and 51 ft. wide. The front of the buildings is devoted to the sergeant-major's quarters and the necessary clerical offices, whilst in the rear are the sergeants' messroom and an armoury where 500 rifles can be accommodated. Upstairs, on the first floor, are the officers' messrooms and a gymnasium. The whole has been fitted up with the electric light, and the drill hall has been so arranged that the building may be used for banquets, entertainments, and general public gatherings. The architects for the hall were Messrs. Oswald & Son, of Newcastle, and the contractors Messrs. Kell & Son, of Durham.

PUBLIC HALL, ALFORD, ABERDEEN.—The foundation stone has just been laid of the new Alford Public Hall. The plans of Mr. G. F. Milne, architect, Aberdeen, were accepted. The building, which will be 87 ft. in length and 43 ft. in breadth, embraces two halls, the larger of which is seated for 500 persons, and the smaller for 100. There are also the necessary ante-rooms, lavatory accommodation, and a kitchen fitted with the necessary appliances. The building will be ventilated by Boyle's system. The walls are of Sylavathie granite.

NEW BUILDINGS IN ABERDEEN.—The Plans Committee of the Town Council have sanctioned the plans of the following new buildings :—Shed on the east side of Old Ford-road for C. F. Paton & Co., Ltd., per Messrs. Cameron & Watt, architects; dwelling-house on the north side of Ashgrove-road for Mr. Arthur Taylor, sculptor, per Mr. R. C. Garden, architect; two dwelling-houses on the west side of Forest-avenue for Mr. James Scott, house proprietor, per Mr. Harvey Mennie, architect; alterations in connexion with premises, No. 13, John-street, for Messrs. James Wilson & Son, grain merchants, per Messrs. W. Henderson & Son, architects; alterations and addition in connexion with mission-hall, on the east side of Correction Wynd, for the managers of the West United Free Church, per Mr. George B. Mitchell, architect; six dwelling-houses on the north-east side of Duthie-terrace for Mr. Benjamin Gill, West Cults, per Messrs. Sutherland & Pirie, architects.

THE NEW MUSEUM, CARDIFF.—A special meeting of the Cardiff Museum and Art Gallery Committee was held on the 17th ult., to inspect the plans submitted by Mr. Edwin Seward, F.R.I.B.A. The plans were accompanied by a Report, in which the architect stated that he had visited various museums in England and on the Continent in order to gain information as to what was needful. A detailed discussion took place, the Committee approving generally of the plans, and it was resolved to supply each member with a lithographed copy for further consideration. The cost of the portion of the buildings covered by the plans is roughly estimated at 30,000*l.*

ST. ANDREW-BY-THE-WARDROBE, QUEEN VICTORIA-STREET.—The alterations in connexion with the churchyard at this church, which is situated next to the Bible Society in Queen Victoria-street, have now been completed. In place of the high and ugly blank wall, new wrought-iron railings and stone piers with carved vases have been erected. The wrought-iron gates are given by Mrs. Banister Fletcher in memory of her late husband, who was churchwarden. The churchyard has been laid out in terraces and covered with turf, exposing one of the best samples of Wren's churches to public view, and adding another green spot in London. The work has been designed and carried out under the superintendence of the architects, Messrs. Banister Fletcher & Sons. The keys, if

required, are to be obtained from Mr Thomas J. Whiffen, 30 and 31, St. Andrew's-hill, Queen Victoria-street.

PROPOSED NEW FIRE STATION, BRIGHTON.—On the 24th ult., Major C. E. Norton, R.E., Local Government Board Inspector, held an inquiry at the Town Hall, Brighton, concerning the application of the Corporation for sanction to borrow 10,050*l.* for the purchase of land for street improvements, 4,472*l.* for the erection of a fire station, and for consent to the appropriation of a part of the Pavilion Estate as a site for the same. Among those present were Mr. F. J. C. May (Borough Surveyor), and Fire Superintendent Lacroix.

FOREIGN.

INDIA.—The Rangoon Municipal Commissioners have adopted the Hlawga scheme of water supply to the city in preference to the Thamaing Lake scheme.——The military authorities of Quetta are about to adopt the electric light for the military and civil station, the railway station, workshops, and quarters.——A Victoria Memorial Hall is about to be erected in Calcutta, presumably on the Maidan, and near the middle of Esplanade-row East; trial pits to ascertain the nature of the soil have been made.——The land formerly occupied by the lunatic asylum at Lahore has now been reclaimed, and the railway administration is building quarters on it for traffic menials, at an estimated cost of 21,176 rupees.——The historic Hastings House in Calcutta is undergoing complete restoration, with a view to its being occupied from time to time by native princes and noblemen who may be invited as imperial guests.——House building is very brisk in Calcutta at present, and the demand for houses so much exceeds the supply, that many well-to-do natives are invading the European quarter.——A magnetic observatory is about to be erected at Kodaikanal at an estimated cost of 15,000 rupees; the work is sanctioned and classified as an "Imperial civil building."——Several historical pictures in the Calcutta Town Hall have been renovated by Mr. Scott, an artist visitor to the city, and the residents have thanked the Corporation for the measures taken to clean and revive the pictures, whereby the public interest in them is much enhanced.——A bridge is about to be built over the Ganges at Allahabad in connexion with the new railway line.——An extension of the Gwalior railway from that city to Jabalgarh has been sanctioned.

GERMANY.—The German Emperor unveiled a stained-glass window, designed by Professor Ernst Ewald, in the Museum of Industrial Art in Berlin on January 25. The window represented the late Emperor and Empress Frederick with clasped hands, the Emperor in mediæval armour and the Empress in a costume of the period. The window is placed on the great staircase of the museum. The Emperor subsequently delivered an address on art, when he urged his subjects to cultivate "a definite conception of the beautiful, and to adapt it to their needs in life."

AUSTRIA-HUNGARY.—A large Roman Catholic parish church is to be erected in Vienna, and competitions have been invited by the Ministry of Culture. The first prize is 1,000 kroner, and the designs are to be sent in by the 15th inst.——The same body invites designs for a reliquary, and two prizes of 500 and 300 kroner are offered to sculptors, the designs to be sent in by the 15th inst.——The Municipal Building Department of Buda-Pesth contemplate erecting a public monument to Kossuth, and invite designs from architects and sculptors. The prizes offered are 6,000, 4,000, and 3,000 kroner for the first three in order of merit respectively, and the designs must be submitted by the 28th inst.

MISCELLANEOUS.

SELBY ABBEY CHURCH.—The central tower of Selby Abbey Church is in a ruinous condition, and on the 21st ult. a meeting of the inhabitants was held in the public rooms for the purpose of considering the condition of the tower and the means that should be taken to remedy it. The Bishop of Beverley said that if the present state of the tower was causing a certain amount of disappointment after the great work of restoration that was carried out, it must be met with courage and practical wisdom.—The Vicar of Selby explained the present condition of the tower, due, as he showed, to the treacherous character of the foundations, which consisted of cobbles thrown down on sand. In 1690, he said, the tower fell. Why, no one knew, but its foundations had probably been weakened by the removal of many buildings which formerly acted as supports, and possibly by the long-continued dry weather. At that time an appeal throughout the country was made. Experts who had made an examination agreed as to the great danger there was from the upper part of the tower. The signs of distress previously observable had extended, new cracks had presented themselves, and the upper part was now very much worse than when the last official examination was made. It was not for the sake of the tower itself that the subject needed attention. The tower was a comparatively modern structure, but the nave and choir, in which the glory of the Abbey Church rested, was in imminent danger if any collapse took place. Concluding, the Vicar recommended that in the first place the tower should be made safe. The upper part would in any case have to be taken down first, and then a scheme for rebuilding it could be taken in hand. Lieut.-Col. Hawdon moved a resolution expressing the opinion that the tower "demanded immediate attention, with a view to ensuring its safety." Mr. Mark Scott seconded the resolution, and it was unanimously agreed to. On the motion of Mr. E. Townend, seconded by Mr. J. Connell, a committee was appointed to take such steps as might be necessary for securing the safety of the tower.

INDUSTRIAL ARBITRATION IN AUSTRALIA.—New South Wales is closely following New Zealand in the attempt to substitute a compulsory system of arbitration in place of strikes and lock-outs, and thus assist in preventing a repetition of the disastrous conflicts between employers and employed which have been so frequently, as in other countries, productive of injury to the mutual interests of capital and labour. In framing the Act several improvements, suggested by the working of the law in New Zealand, have been made. In New Zealand any seven persons can form an industrial union, but in New South Wales only a registered trades union can do so. The reason for the change is that the privilege given in New Zealand was abused, and has been sometimes used by traders to arouse disputes in the employment of trade rivals. Moreover, it is enacted that no industrial dispute can be referred to the Court of Arbitration save by a registered trades union or by the official Registrar, and it is also imperative that the opinion of a majority of the members of the trade shall be taken in a manner prescribed. This is for precautionary purposes, so that there shall be no hasty or ill-considered entrance into a dispute. Again, there are no boards of conciliation, as in New Zealand. This means that there will be no preliminary investigations, the dispute being taken straight into court, thereby preventing delay and decreasing expense. Another and most important innovation consists in making it a misdemeanour by employees to strike, or by employers to lock out, either before a reference or during its progress. There is to be no cessation of industrial operations pending the settlement of the dispute. It is stated that this is the first instance of an attempt being made in any Legislature to treat a quarrel between a master and his workmen as a public nuisance which ought to be prohibited.

MARKET VALUE OF BUILDING SITES IN LONDON.—The freehold site (to which we recently adverted) adjoining that of the Olde Bell tavern in Fleet-street, with return frontages to St. Bride's-avenue and Bride-lane, and covering an area of 550 ft. superficial, was sold at the Mart on January 22 by Messrs. Douglas Young & Co., on behalf of the Corporation of London, for 10,150*l.*, that is, at a rate of nearly 18*l.* 10*s.* per square foot; in April last the site of the tavern itself realised at auction a price of 7,500*l.*, equal to about 6*l* per square foot. Under direction of the Ecclesiastical Commissioners, the sale at auction of the site of the Church of St. Bartholomew, Little Moorfields, was effected on January 21 by Mr. Tewson, of Messrs. Debenham, Tewson, Farmer, & Bridgewater, at a bidding, on behalf of a building syndicate, of 20,400*l.* The site, extending over 6,300 ft. superficial, has a total frontage of 270 ft. to Moor-lane, Tenter-street, and New Union-street.

WORKING-CLASS DWELLINGS, ST. PANCRAS.—The Local Government Board have made an order sanctioning two schemes prepared by the Borough Council of St. Pancras in respect of the Brantome-place and Prospect-terrace areas and the Great College-street site, for the erection of dwellings to accommodate respectively 430, 144, and 322 persons of the working class. The Board, however, require that, whilst one-half of the Brantome-place area shall be cleared as soon as may be, so as to provide for 215 persons, no buildings now occupied as dwelling-houses on the other half shall be demolished until that accommodation shall have been duly supplied; they enforce a similar condition as regards the Prospect-terrace area; the dwellings upon the Great College-street site are to be built by the local authority within two years from December 7 last.

ABERDEEN MASTER PAINTERS' ASSOCIATION.—The annual meeting of the Aberdeen Master Painters' Association was held in the office of the Secretary, Mr. J. B. Davidson, Union-street, on the 20th ult., when the office-bearers were elected as follows:—President, Mr. Alexander Latto, Vice-president, Mr. William Philip; Secretary and Treasurer, Mr. J. B. Davidson; committee, Messrs. Henry Donald, John Mason, Edward Copland, Adam Buchan, C. R. Fraser, and J. W. Forrest. The President stated that he had attended a conference of the National Association of Master Painters, of which he is President, and the question of the travelling scholarship had been settled very satisfactorily. A statement was then submitted on the subject. The statement explained that a proposal had recently taken shape among the three national associations, England and Wales, Ireland, and Scotland, for the institution of a travelling scholarship for apprentices, with the view of enabling them to extend their theoretical and practical knowledge of decorative art. It had been proposed that the scholarship should be of the annual value of 50*l.*, and that the Association of England and Wales should contribute annually 25*l.*, Scotland 15*l.*, and Ireland 10*l.* It seemed reasonable and expedient that while the present levy of 5*s.* per member of affiliated associations, and 7*s.* 6*d.* per individual members should be maintained, there should also be a scheme whereby the expenses of the apprentices' competition and the contribution to the proposed scholarship should be met by a contribution from the members of the Association, or individually in proportion to the number of apprentices employed. It is estimated that 1*s.* per apprentice at the most would be amply sufficient. The report was adopted. With regard to the by-laws existing between the masters and employees, it was stated that no alteration would take place during the present year.

THE ASCROFT MEMORIAL, OLDHAM.—The members of the Parks and Cemeteries Committee, with representatives of the Ascroft Memorial Committee, held a meeting on the 20th ult. with a view of selecting a site in Alexandra Park, Oldham, for the erection of a statue to the memory of the late Mr. Robert Ascroft, M.P. It was resolved to place the statue on the top walk of the park. Mr. Pomeroy, of London, has been appointed the sculptor.

IMPROVEMENTS AT WINDSOR CASTLE.—Considerable improvements have been made in the sanitary arrangements of the southern part of Windsor Castle, recently occupied for a few days by the King and Queen, by the Office of Works, under the supervision of Professor Corfield, the consulting sanitary adviser. All the drains under the South Tower from Edward III.'s Tower to the Victoria Tower have been done away with, so that there is now no drain under the buildings on that side of the Castle, and new water-tight iron drains have been laid outside the building. Internal water-closets and soil-pipes have been cleared away, ventilated lobbies formed in connexion with the closets, new soil-pipes fixed outside the building, and the most improved appliances of all kinds fixed. Suitable disconnexion arrangements have been provided between the new drains of these towers and the Castle sewers, so that each of the towers is, so far as the drainage is concerned, a house within itself. Similar improvements will be gradually carried out throughout the rest of the Castle.

BRISTOL MASTER BUILDERS' ASSOCIATION.—The annual meeting of the Bristol Master Builders' Association was held at the offices of the Guildhall, the President, Mr. Walters, being in the chair. The annual report, of which the following is a summary, was presented: The work done by the Association during the past year had been of an excessive and varied character. The volume of trade was fully maintained, as anticipated in the earlier part of the year, but towards the end dwindled to an appreciable degree, without a doubt the result of the general depression in trade throughout the Kingdom, and the period now under review could not by any means be taken as a standard from a builder's standpoint. The Association had issued notices to the various operative societies of an intention to alter the rules with regard to the rate of wages and periods of notice. The reorganisation of the South-Western Federation, and the various details in connexion therewith, had occupied much time, and perhaps the most vital question was that dealing with the financial position of the federation. The importance of that matter was fully realised, and an opinion was expressed that the fairest way of arriving at the subscription was to fix it upon the basis of the amount of wages paid by each employer. Cases having come under the notice of the Association in which tenders for work were requested without the necessary quantities being supplied, it was resolved that the members of the Association should refuse to tender unless quantities were supplied for all works amounting to and over 1,000*l.* The subject of naming a time limit for the completion of contracts had been introduced to the notice of the committee, and it was considered that prompt action should be taken and a definite line laid down as to procedure. It was accordingly resolved that in tendering for work where it was requested a time limit should be named, such a request should not be complied with.—Mr. Church moved the adoption of the report, which was seconded by Mr. Humphreys, and carried.—Mr. Humphreys, Hon. Treasurer, presented the statement of accounts for the past year, and upon the proposition of Mr. Geo. Wilkins, seconded by Mr. Neale, it was approved.—The retiring President, Mr. Walters, proposed the election of Mr. George Wilkins as President for the coming year. This was seconded by Mr. Krauss, supported by Mr. George Humphreys, and carried unanimously. The newly-elected President was at once inducted into office, and presided for the remainder of the meeting.—Upon the motion of the President, seconded by Mr. Neale, a hearty vote of thanks was tendered to Mr. E. Walters for the time and attention he had devoted to the work of the Association during his year of office. Mr. Walters briefly acknowledged the compliment.—On the motion of Mr. Neale, seconded by Mr. Lovell, Mr. A. Dowling

was unanimously elected Vice-President. Mr. George Humphreys was re-elected Hon. Treasurer, and heartily thanked for his past services in that capacity. The following gentlemen were elected members of the Committee:—Messrs. W. Church, A. Krauss (Hon. Vice-President), Neale, Walters, Ridd, Poole, Lovell, F. N. Cowlin, Easterbrook, and Woodward.

THE LOCAL GOVERNMENT ANNUAL FOR 1902.—The eleventh issue of this very useful work (published at No. 2, Dorset-street, Fleet-street, E.C.) has been brought well up to date, and some new features have been introduced. The directory portion gives the names and addresses of the chief officials of all Corporations, London Borough Councils, County Councils, Boards of Guardians, Urban and Rural District Councils, County and Borough Asylums, &c., throughout the kingdom, as well as the public libraries, public parks, and City Companies of London. The names of committee chairmen in the Metropolitan boroughs, and the chairmen and vice-chairmen of the London County Council Committees are given for the first time. There is also useful information relating to the public libraries, baths and wash-houses, and electric light undertakings in the boroughs of London, and an abstract of the Local Government legislation of 1901. The charges for water and gas in London are shown, the population of the various provincial Unions is given, and a list of all the parks and open spaces of the Metropolis, with the Local Authorities controlling them. The book is sold at 1s. 6d.

LEEDS AND COUNTY BUILDERS' EXCHANGE.—The members of the Leeds and County Builders' Exchange held their annual dinner at the Hotel Metropole, Leeds, on the 24th ult. There was a company of about seventy, and the chair was occupied by the President of the club, Mr. E. Umpleby. After the loyal toasts, Mr. Paul Rhodes gave "The Lord Mayor and City Council." There were one or two eye-sores that he much wished to be removed. First and foremost, there was the ugly corner extending from the Queen's Hotel to Aire-street. When was this to be done away with, and when was the Midland Co. going to put up a station entrance here worthy of the city? There was another ugly corner opposite, which wanted dealing with speedily. Lastly, there was the wretched dismal pile of buildings opposite one of the grandest Town Halls in the kingdom. If the gentlemen who owned this property had anything like an eye for beauty, it ought to be all pulled down, so as to get a square there fit for the fifth city of the country. Ald. Carter responded. Mr. Wood Higgins gave "The Building Committee and Officials" of the Leeds Corporation; and, in doing so, regretted that work had been given to outside architects, as he was of opinion that there were men in the city who were capable of carrying out any work entrusted to them. Mr. E. W. Batley, who responded to the toast, said that Leeds, as a city, was second to none in the position it occupied with regard to its sanitary arrangements and its buildings right the way through, speculative or not. In his opinion, the speculative builder in Leeds had done good, honest work. Mr. Batley also paid a tribute to the capabilities of Leeds architects, who, he said, were as expert as any outside the city. As regarded the Midland Railway station, the Leeds Corporation had determined to do away with the objectionable goit in that district, and thus altogether improve the station and its surroundings. Under these circumstances, it would be only fair for the railway company to improve their station entrance, to say nothing of contributing a sum of money to the Corporation for the improvements effected. Mr. Towers also responded. The toast of "The Leeds and County Builders' Exchange," was proposed by Mr. W. Bower, who observed that, so far as their Exchange was concerned, they had no jerry-builders. The toast of "The Visitors" followed.

HOUSING SCHEME, SALFORD.—The Salford Corporation a short time ago applied to the Local Government Board for their sanction to the modification of a scheme for the housing of the working-classes in connexion with a block of property in Chapel-street, Salford. It was pointed out by the Corporation that the site in question was not in a suitable situation for the erection of artisans' dwellings, and was more suitable for warehouses. From this site 1,500 people were displaced, but they rehoused 672. There then remained accommodation to be provided for 828. It was also explained on behalf of the Corporation that they were erecting dwellings on the barracks site in Regent-road to accommodate 1,925 persons, and that they had further acquired a suitable site in Seaford-road, near the central electric car depot, whereon could be erected dwellings. A reply has just been received from the Local Government Board pointing out that they were willing to grant the modification asked for, subject to the Corporation housing the 828 people on the barracks site, and making provision for 1,200 people on the Seaford-road site.

THE SLATE TRADE.—The make of slates during the past year shows a considerable falling off, owing principally to the Penrhyn strike, which unfortunately still continues. Stocks both at Mold Junction and in the merchants' yards are very low, so, notwithstanding a falling off in the building trade in some districts, prices are likely to be maintained and demand increase as the season advances. The rise in prices in America and advance in freights caused by shipping combines will still further help the home trade.

PENRHYN QUARRY.—A letter signed by three of the Penrhyn Quarry workmen (Robert Jones, David Pritchard, and Melancthon Williams) has been sent to various Welsh newspapers, in which the writers deny that there is any dissatisfaction among those now at work at the quarries. They conclude:—"We have again and again said that we are entirely satisfied with Lord Penrhyn's terms, and once again we emphasise the fact that we are satisfied with the same reasonable and fair terms of Lord Penrhyn; and, moreover, we formally protest against the malicious rumours to which we have referred—there is not a shadow of truth in them. We are continuing in our employment, we are in complete accord with one another, we are increasing in numbers day by day, and there is an increase in the output of slates month after month. We appeal to and we invite our former fellow-workmen to come and judge for themselves whether the state of affairs is n t as we say."

DRAUGHT PREVENTERS TO DOORS.—We have received the following suggestion from Mr. Edward A. Harman, M Inst.C.E., the engineer and manager of the Huddersfield Gasworks:—"In workshops, messrooms, bathrooms, mills, and large factories the doors into the separate rooms frequently admit a furious draught. Various draught-preventers, patent and otherwise, have been tried, but perhaps one of the simplest extant is that of a roller, about 2 in. or 2½ in. diameter, of the width of the door, attached to the inside of it by means of a pair of lugs having vertical slots in them, instead of a circular hole; the small axle of the rollers thereby being allowed to slide freely up and down in the slot, and thus allow for any irregularities in the floor. The contrivance is a very simple one, and is capable of being adopted to the doors of outer kitchens, lobbies, sheds, &c., with a considerable reduction in the draught space available. It is really like a towel-roller placed on the floor. Care should be taken in fixing it that the lugs permit of the rollers being practically close to the door when fixed, and that they rest upon the floor. The writer has tried the above arrangement for some years with considerable success and comfort. In some cases the roller may be threaded in several pieces about 3 in. in length on an axle. Manifestly the small reels work more freely than a long one. Though only a trifling detail, yet details are of importance."

ST. SIMON'S, JERSEY.—A large two-light window has just been placed in this old church. The first light represents St. Martin dividing his cloak, and the second light St. John at the Latin Gate. The subjects stand under canopies of fifteenth century style. The window was executed at the studios of Messrs. Taylor & Clifton, of London, W.

MASTER BUILDERS' ASSOCIATION, HEREFORD.—The fifth annual dinner of the Hereford and District Master Builders' Association, which is affiliated to the National Federation of Building Trade Employers of Great Britain and Ireland, was held at the Mitre Hotel, Hereford, a few days ago. In the absence of the President (Mr. W. Lloyd), the chair was occupied by the Vice-President (Mr. C. Cooke), and the vice-chair by Mr. W. Powell. The loyal toast having been honoured, Mr. C. Beavan submitted "The Town and Trade of Hereford." Messrs. Hewitt and T. A. King replied. Mr. H. C. Beddoe then proposed "The National Federation of Master Builders of Great Britain and Ireland, and the South-Western Federation of Building Trade Employers." The builders, he remarked, had federated with a view to protection, and he was sure that none of the members desired to deal otherwise than straightforwardly with their workmen.—Mr. W. P. Lewis, senior, responded, and having referred to the representation on the Federation, the competition with trades unions, the hours of labour, rules, &c., and the work of carpenters and joiners, he said that they in Hereford might compliment themselves that they were going on amicably with their men in all trades. They were pleased at this satisfactory situation, and he hoped it would long continue. Matters had gone on very well with respect to the meetings of the National Federation.—Mr. W. Powell proposed "The Architects and Surveyors of Hereford," and said it was a mistake to think that the masters had banded themselves together to keep up prices generally. Competition now was keener than ever, and they had to meet with the times. All they asked for was fair trading. Mr. G. H. Godsell, in responding, said the architects and surveyors could not do without the builders. Referring to a non-return of expenditure upon labour, he said that bricklayers ten years ago laid more bricks than now. They would never educate a man to do his work under a certain time. They wanted an alteration in the apprenticeship and the bringing up of boys in trades. The class of work obtained now was not what it used to be. The builders had treated the architects and surveyors very well, but the position now, as compared with the early part of the nineteenth century, had changed. The architect used to dictate, and the builder obeyed. Mr. J. Parker also responded to the toast.—Mr. R. L. Bamford submitted "The Hereford and District Master Builders' Association." Their association contributed very considerably to the benefit of the building trade, to sanitation, and to the trade of the city generally. He recognised to the fullest extent the benefit and advantage of an interchange of those views which arose from such a meeting as this. The Chairman responded, and said it was necessary for builders to be federated, to unite, not for purposes of aggression or oppression, but for defence, and workmen were beginning to see they would have to be more reasonable in their demands, and not proceed in such a high-handed manner as in the past. No doubt trades-unionism became necessary in the past, when men were tyrannised over by unscrupulous employers, but now the trades unions constituted the tyrannical dictator, and it was absolutely essential that the builders should combine. Only by showing a united front could they be able to resist the unjust demands so constantly made by the operatives. There was now a code of rules fair as between employer and employed, and all they desired from a man was a fair day's work for a fair day's pay. It would be better for the parties concerned if all the builders were associated. Mr. L. Hodges proposed "Our Guests," and Mr. H. C. Beddoe and Mr. J. Mitchell responded. Mr. A. Dryland proposed "The President and Officers," and said he would like to see a better class of workman encouraged by the master builders, a prize, perhaps, to be offered to the man who did his work in the best possible manner. Could not this Association institute some means by which industrious workmen should be encouraged? Good honest labour ought to be assisted. Unless the cost of building could be reduced, he was afraid there was a bad time in store for the building trade.

LEGAL.

A PLYMOUTH ARCHITECT'S COMMISSION.

THE case of Keats *v.* Rendle came before the Court of Appeal, composed of the Lord Chief Justice, the Master of the Rolls, and Lord Justice Mathew, last week, on the appeal of the plaintiff, Mr. James Henry Keats, an architect, of Plymouth, from a judgment of Mr. Justice Day on February 11 last year, at trial with a jury at the Exeter Assizes.

Lord Coleridge, K.C., and Mr. Lloyd appeared as counsel for the appellant, and Mr. Duke, K.C., and Mr. Clavell Salter for the respondent.

Lord Coleridge said that the jury awarded the plaintiff 200*l.* damages, but his Lordship set the verdict of the jury aside and entered judgment for the defendant. The action was brought for architect's commission. The plaintiff had been engaged in the preparation and sale of a number of building estates, and came into communication with the defendant in 1885, who, with others, desired to develop an estate called the Vinstone building estate, near Plymouth. An arrangement was come to, the interpretation of which was that the plaintiff was to receive 5 per cent. commission on all land sold. The interpretation of the agreement was contained in a letter by plaintiff to defendant. A good deal was done on the estate, and plaintiff received from time to time commission on plots sold. On October 26, 1896, the defendant wrote to the plaintiff stating that it was probable the owners of the estate might receive an offer for a considerable portion of the property *en bloc*, when they would not require the further services of an architect. The defendant asked for the plaintiff's charges, as the account was to be settled with the co-owners, who wished to clear off all liabilities in respect of the estate. The plaintiff's contention was that this was contrary to the arrangement, and the case really resolved itself into one of damages for wrongful dismissal. The learned counsel said that the plaintiff had explained to the defendant that he was not anxious for the post except upon his own terms, which were that when any plots on the estate were sold he was to have 5 per cent. commission.

The Lord Chief Justice: Your case is, then, that they might never dismiss him.

Lord Coleridge: Not until the estate was sold.

Continuing, the learned counsel said the jury found a verdict for the plaintiff on a question of fact. It was true they did not give him all he claimed, their view being, he supposed, one of damages for wrongful dismissal. There was nothing to show that plaintiff could compel the owners to sell any more land, but there was nothing unreasonable in suggesting that the terms of the bargain were thoroughly understood, and that so long as they continued to sell, plaintiff was to receive 5 per cent. commission. The jury took the view that so long as plaintiff was willing to act for them the bargain could not be set aside. He submitted that the jury were right in their verdict, and that it ought not to have been set aside.

The Lord Chief Justice said he did not find anything to show that plaintiff should continue to act for ever, but that he should have 5 per cent. on the sale of land, whoever sold it. Did not that mean "whoever sells it so long as I am your agent"? Counsel had to show a contract continuing plaintiff as the agent so long as there was any land unsold.

Lord Coleridge replied that the jury evidently thought that such was the case.

Lord Justice Mathew: Was not the contract for services rendered on each occasion?

Lord Coleridge inferred that the class of house throughout the estate was to be selected by the

vendors, so as to suit the neighbourhood and its requirements, and rather showed, if anything, that the plaintiff was to be the architect of the whole estate.

Lord Justice Mathew: Was he not the agent of the vendors?

Lord Coleridge replied that he might be called their agent in one sense.

Without calling upon counsel for the respondent, the Lord Chief Justice, in giving judgment, said that for upwards of twelve years the plaintiff had acted on certain terms, viz., that he was to receive 5 per cent. commission on sales of land for a certain estate, whether he made the sales or not. To that extent he thought the plaintiff had protected himself. It was now said there was also a contract that so long as the gentlemen concerned owned the estate, he would continue as their agent, or that if they did not, they would pay the 5 per cent. commission. In order to establish that, it must clearly appear on the face of the contract. He thought the outside it could be said to amount to was that it was a bargain during the time he was their architect, that whoever sold the land during that time he should get 5 per cent. There was nothing to show that the defendants had not got the right to determine the contract. He thought that Mr. Justice Day was right in setting aside the verdict, although he did not think he ought to have allowed the case to go to the jury at all.

The Master of the Rolls and Lord Justice Mathew concurred, and the appeal was accordingly dismissed with costs.

MEANS OF ESCAPE IN CASE OF FIRE FROM A FACTORY.

AT Guildhall recently, before Mr. Alderman Smallman, Miss A. E. B. Yeo was summoned for that she, on November 1 last, being within the meaning of the Public Health Act, 1875, owner of premises situate at 3, Lauderdale Buildings, Aldersgate-street, which premises were a "factory," unlawfully failed to comply with a notice served upon her by the London County Council specifying the measures necessary for providing the said factory on the stories above the ground floor with reasonable means of escape, in case of fire, for the persons employed there.

Mr. Thomas Chilvers, who appeared on behalf of the Council, put in a plan of the factory, and said that so far back as 1900 a letter was sent to Miss Yeo suggesting what should be done to render the place safe. The premises consisted of a basement and four floors above, and the only means of escape from the upper part, in the event of fire, was one narrow wooden staircase. At the time the first letter was written there were 258 persons employed on the premises. Various communications had passed between the Council and the defendant, but their suggestions had not been carried out—in fact, nothing at all had been done.

Mr. Robinson, for the defence, said the lessees were Messrs. James & Co., who were erecting new workshops with every modern improvement. They had been delayed by questions concerning ancient lights, &c. He asked for an adjournment of six weeks, at the end of which time Messrs. James & Co. hoped to be in their new premises.

Mr. Chilvers remarked that the London County Council had tried to meet the case in every way, but could take no further responsibility in the matter.

The Alderman pointed out that for fifteen months practically nothing had been done to comply with the Council's notice. He therefore imposed a fine of 10*l.*, with 2*l.* 2*s.* costs.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

17,338.—VENTILATION OF CLOSET BASINS: *C. Evans*.—Two inclined flanges or channels, in the shape of collars, are fashioned around the seat, or the top of the basin, of a closet to which a waste-water flush is supplied, and it is contrived that a pipe shall convey waste rain-water into the channels so as to ventilate the basin.

17,343.—A SPANNER: *A. H. Dougill*.—Stems provided with interlocking teeth carry the two jaws which can be locked on occasion by means of a sliding ring that forces the teeth together, as it is passed over the slightly tapering portion of the stem; a spring is employed for keeping the teeth out of their engagement.

17,374.—FLAPS FOR THE INLETS OF DRAINS, FOR DUST-BINS, &c.—*C. A. Bond*.—The invention is described as being applicable also to dust-bin covers, lift-doors, scavenger-cart covers, and similar objects. It consists of a hinged and weighted flap which—in the instance of a drain trap—is caused to press against an inclined seating, and thereby to prevent back-flow.

17,385.—FASTENINGS FOR WINDOWS AND DOORS: *A. Heller and J. Wenzel*.—The pulling of a ring or lever handle, having friction rollers at its end, lifts a lower bolt out of its socket, and with that motion the upper part of the bolt strikes a lever which draws the upper bolt downwards; the sockets are pivoted and are fitted with springs which enable them to give way upon impact with the bolts. In the case of sliding doors a key having two bits that work either with or without tumblers operates the bolts, upon the bevelled ends of which rollers may be mounted. The principle of the invention is available for sliding or hinged doors and windows.

17,411.—APPARATUS FOR WEIRS AND SLUICE-GATES: *S. H. Adams*.—A hollow chamber that slides in guides into a recess in the river-bed constitutes the weir, a flexible or telescopical pipe connects the chamber to the outlet-pipe, on which is a regulating cock; whilst the inlet pipe joins the chamber and a fixed level. As the water in the river rises above that level the chamber is filled, since the cross section of the inlet pipe is larger than that of the outlet pipe, and the weir will sink until the river-water falls below the fixed level, whereupon the weir rises as the chamber gradually becomes empty. In another shape the weir-chamber is open at the bottom, and a bent pipe from beneath it is passed, above the river-water level, to a dome within a closed chamber, into which water can be admitted through either a siphon from a flush tank or a pipe from the river when the level is abnormally high. A water-seal affords communication between the interior of the weir chamber and the river water, and the seal will be broken only by an excess pressure of air that is impelled into the chamber by the current of high-level water from the river into the closed chamber around the dome. Over the siphon is a tank, into which water is admitted through a cock worked with a float—the position of the float being regulated by means of a pipe that conveys water from the river.

17,428.—BEAMS AND GIRDERS: *H. J. Armstrong*.—For strengthening the webs of L, T, I, or other girders are devised diagonal or curved bars or flanged tubes that engage with grooves in the webs and are to be fastened by welding or with rivets. Flanged and half-conical struts stiffen the middle line of the girder, and hollow triangular struts are fashioned by bending the web-ends. The radius of curvature of each groove increases from the centre towards the ends of the girder.

17,432.—MECHANISM FOR LIFTS: *F. Bauke*.—A tube fits telescope-wise in another tube, which will fall and rise in a vessel containing liquid. The former tube carries the platform of the lift or cage. For lifting purposes an injector, supplied from a gas bottle, forces air under pressure to the tubes, and for purposes of lowering the air is allowed to effect its escape into a gasometer, which will also supply the injector.

17,477.—MEANS OF PILING TIMBER: *A. J. Tenow and J. E. Flodström*—Inclined planes, set at a zig-zag, direct the timber as it slides down from the conveyer. Ease of descent is provided for by means of pivoted and counterbalanced doors at the ends of the inclines, of which, under normal conditions, the doors constitute extensions. The timber is gathered on each door by a projecting arm or step, until the door falls and lowers the timber on to the incline next below. Each arm can also be turned so as to form an extension of the door, and thereby the timber can be discharged either to the left side, or to the right side when one of the middle stops has been turned downwards.

17,496.—A CEILING-ROSE FOR ELECTRICAL PURPOSES: *H. Hirst and H. Bevis*.—A rectangular projection is fashioned upon the insulating-base of the rose, and the hanging wires are passed through two opposite holes and slots in it to binding-screws upon metallic plates, the loops of the wires being inserted through long holes in the base and thence into terminals, which are slotted obliquely, upon the plates.

17,499.—PROCESS OF MOULDING TILES: *P. Bruns*.—A profile roller is fitted on to a sliding drum or hopper, which feeds material to the mould, and an eccentric oscillates a hinged stamping-iron, which presses the material; as a lever, a link, and an axle move the moulding-drum on the guides a curved slide hanging from pivoted arms is swung automatically out of action; on the axle is loosely mounted a double-toothed wheel set in gear with a fixed rack for driving the roller and the eccentric, and a foot-lever ejects the tile out of the mould.

17,502.—AN APPLIANCE FOR LAMP CHIMNEYS: *F. Alimann*.—The inventor's object is to facilitate the replacement of incandescent and other cylindrical lamp chimneys by means of a tubular guide, which is carried by levers above the holder in such a manner that room is left for the opening of the edges of the holder as the chimney is being put in; curved parts, actuated with springs, grip the chimney-holder, and the upper ends of the two levers or rods are compressed as one passes the curved parts over the expanding upper edges of the holder.

17,513.—MEANS OF DISINFECTING CISTERNS: *D. Provand*.—The contrivance relates to the disinfection of water-closet and other cisterns that are periodically emptied; a vessel fitted with an inlet and outlet is filled with some soluble disinfectant, and is then put into the cistern below the level of the water therein; as the cistern is being emptied some of the charged liquid will flow out of the vessel, the amount of discharge being regulated by means of a thin rod which slides into the inlet.

17,556.—LAVATORY-FITTINGS: *A. Hutchison*.—A flange at the foot of the bath carries the basin of which the discharge-pipe communicates with a trap having a dip-plate that is fashioned in one piece with the bath, and a screw-pin fastens the plug-seating; a common neck, serving for both hot and cold water, is fitted with a swivel in order that one may turn it over the bath or basin.

17,557.—A COLD-WATER PAINT: *G. R. King*.—An admixture is made of some albuminous substance, such as casein, and a base of plaster, chalk, talc, pigments, &c., and is ground. Another mixture is made of glue and hydrated lime, and ground. The two compounds are then mixed together with an addition of more of the base ingredient. The paint can then be mixed with water for use.

17,593.—IMPROVEMENTS IN DRAIN-PIPES AND GULLEY-TRAPS: *J. E. Leach*.—In the case of drain-pipes, a socket is fashioned upon the spigot-end for engagement with the customary socket. For traps, a flattened dome, mounted upon legs, is used for sealing the outlet. Flanges and a bait are provided above a silt-collecting vessel, which is laid over the dome, and slits enable the water to escape.

17,624.—APPLIANCES FOR LIFTING MACHINES: *F. W. Hollick and A. S. Hollick*.—The specification extends to appliances for use with hoists, cranes, winches, and capstans. A larger brake wheel is mounted loosely upon the shaft, and around a brake wheel attached to the drum shaft, which is driven with epicyclical brake-gearing from the motor shaft; on to the larger brake wheel is pivoted a brake lever that is joined to a band upon the smaller brake-wheel, and has arms of unequal lengths, whereby the brake will automatically prevent the running down of the load when the larger brake-wheel is fixed, and when it is desired that the load shall run down one lifts a weighted lever so as to liberate the brake which, in normal conditions, grips the larger brake-wheel. A pinion, fastened upon the shaft, that gears with pinions mounted upon a brake-wheel, and with an interior spur wheel running loosely on the motor-shaft, form the epicyclical breaking gear, the speed of the drum-shaft depending upon the amount of force employed in bringing the brake to bear upon the last-named brake-wheel.

17,632.—A TRIPOD STAND: *A. Kaufmann*.—Each of the three legs is made by coiling a wedge-shaped strip of metal around the shank of a spike and inserting the end of the strip into a cap which is pivoted on to the table of the stand, the coil can be drawn out spiral-wise by pulling the spike downwards, and a scale for adjustment of height will thereupon become uncovered for use.

17,642.—ELECTRICAL-CURRENT METERS: *W. du B. Duddell*.—Near the movable thermo-couple of a radio-micrometer is placed a stationary non-inductive resistance, through which flows an alternating or a continuous current; the inventor contrives that the deflection shall afford a measure of the heat which is developed in the resistance, and of the current as well; he specifies a radio-micrometer after the kind described by Mr. C. V. Boys in vol. 180 of the *Philosophical Transactions of the Royal Society*, but he adopts variations of the indicator and suspension, and does not insist upon the retention of the copper heat-receiving plate; for use with large currents the heating-resistance may be shunted, or it may be used with a series resistance for measuring electrical pressures.

17,684.—MECHANISM FOR BALL-AND-FLOAT VALVES: *F. Wangelin*.—For shutting an inlet nozzle there is a cap having beneath it a washer that is to be kept down with a screw at the end of a lever which is pivoted on to a bent carrier; set-screws control the play of the lever, on to which is pivoted the arm of the float, the latter play being controlled with a screw inserted through another arm; the reversal of the float-arm can be effected by means of a similar arm underneath, and the screw which holds down the cap and washer will serve for regulating the constancy of the discharge.

17,700.—CONSTRUCTION OF KILNS: *W. L. Jackson*.—The double roof of each kiln, being one of a group disposed around a common middle chimney, constitutes a chamber wherein air can be heated for drying the goods in another of the kilns, or into which products of combustion can be admitted from one of the kilns for heating the goods in another, dampers being fitted on the pipes that connect the chambers and on the air-inlet pipes. Each kiln is placed in direct communication with the chimney. The openings in the inner wall of each roof-chamber have covers that can be handled through openings in the top, and the inner openings serve for the admission of heated air into the kiln, or for the passage of hot gases into another kiln.

MEETINGS.

FRIDAY, JANUARY 31.

Architectural Association.—Mr. C. Harrison Townsend on "Originality in Architectural Design." 7.30 p.m.

Institution of Civil Engineers (Students' Meeting).—Messrs. J. C. Collett and W. H. C. Clay on "The Quay-Walls of Keyham Harbour." 8 p.m.

Institution of Mechanical Engineers.—An extra meeting, when the paper entitled "Modern Workshop Methods," by Mr. H. F. L. Orcutt, will be further discussed. 8 p.m.

SATURDAY, FEBRUARY 1.

Architectural Association.—First Spring Visit, to Christ Church, Brixton-road, by permission of Professor Beresford Pite, the architect of the building.

Sanitary Inspectors' Association.—Nineteenth Annual Dinner, Venetian Chamber, Holborn Restaurant. 6.30 p.m.

British Institute of Certified Carpenters (Carpenters' Hall).—Council meeting 3 p.m. Monthly meeting 6 p.m.

St. Paul's Ecclesiological Society.—Annual meeting: Chapter House. 2.30.

Edinburgh Architectural Association.—Visit to Archers Hall, Buccleuch-street.

MONDAY, FEBRUARY 3.

Royal Institute of British Architects.—(1.) To announce the name of the person the council propose to submit as a fit recipient of the Royal gold medal 1902. (2.) An Address to Students, by Mr. John Slater, B.A.Lond., Vice-President; and a Criticism of the Designs and Drawings submitted for the prizes and studentships 1901-1902, by Mr. H. T. Hare. (3.) At the conclusion of the above the presentation of prizes will be made by the chairman. 8. p.m.

Clerks of Works' Association of Great Britain.—Annual dinner, King's Hall, Holborn Restaurant. Mr. Aston Webb, A.R.A., will take the chair. 6 p.m.

London Institution.—Mr. C. H. Reilly, M.A., on "City Buildings, Old and New," illustrated. 5 p.m.

Society of Engineers.—(1.) The President for the past year, Mr. Charles Mason, will present the premiums awarded for papers read during the year. (2.) The President for the year 1902, Mr. Percy Griffith, will deliver his inaugural address. 7.30 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. E. J. Steegmann on "Mechanical Physics: Laws of Motion, Hydraulics, &c." 7 p.m.

Society of Arts (*Cantor Lectures*).—Dr. Samuel Rideal on "The Sterilisation of Water, IV." 8 p.m.

Liverpool Architectural Society (*Incorporated*).—Mr. Robert Peppys Cockerell on "The Life and Works of Prof. Charles Robert Cockerell, R.A." Illustrated by lantern slides and original drawings. 6 p.m.

TUESDAY FEBRUARY 4.

Society of Arts (*Applied Art Section*).—Rev. H. Thurstan on "The History of the Rosary in All Countries." 4.30 p.m.

Cardiff, South Wales, and Monmouthshire Architects' Society.—Paper by Mr. Edwin Seward. 8 p.m.

Institution of Civil Engineers.—Papers to be further discussed:—1. "The Sewerage Systems of Sydney, N.S.W., and its Suburbs," by Mr. Joseph Davis. 2. "The Bacterial Treatment of Trade's Waste," by Mr. William Naylor. 8 p.m.

WEDNESDAY, FEBRUARY 5.

Royal Archæological Institute.—(1) Viscount Dillon, P.S.A., on "Horse Armour." (2) Mr. J. H. Round, M.A., on "Castle Guard." 4 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. E. J. Steegmann on "Natural Forces; Light, Heat, Electricity, Chemistry." 7 p.m.

Institution of Civil Engineers.—Students' visit to the Royal Mint, Tower Hill, E.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Northern Architectural Association.—Mr. Nigel Bond, M.A., on "The Work of the National Trust for Places of Historic Interest," with lantern illustrations. 7.30 p.m.

Edinburgh Architectural Association.—Mr. W. Davidson on "Winchester, Salisbury and Wells, and their Surroundings," illustrated by lime-light views. 8 p.m.

Royal Philosophical Society of Glasgow.—Mr. Ebenezer Howard on "Garden-Cities," with lime-light views. 8 p.m.

THURSDAY, FEBRUARY 6.

Society of Arts (*Indian Section*).—Professor Wyndham R. Dunstan on "The Coal Resources of India." 4.30 p.m.

FRIDAY, FEBRUARY 7.

Architectural Association Discussion Section.—Mr. J. Dudley Forsyth on "Stained Glass." 7.30 p.m.

Institution of Junior Engineers (Westminster Palace Hotel).—Paper on "The Electric Passenger Elevator," by Mr. William J. Cooper. 8 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. E. J. Steegman on "The Atmosphere; Pressure and Composition: Air; Combustion and Respiration." 7 p.m.

Glasgow Architectural Craftsmen's Society.—(1) Mr. J. S. Robertson on "Stone"; (2) Mr. R. Armour, jun., on "Brick." 8 p.m.

Birmingham Architectural Association.—Mr. E. P. Hinde on "Elementary School Planning."

SATURDAY, FEBRUARY 8.

Dundee Institute of Architecture.—Mr. Menart on "A Comparison of Continental and British Architecture." 7 p.m.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

January 15.—By CHARLES YOUNG (at Petersfield).

Liss, Hants.—A freehold allotment, 3 a. 3 r. 27 p. £280

January 17.—By ROBERTS, SON, & TORY (at Yeovil).

Yeovil, Somerset.—12, Middle-st., f. (including goodwill) 2,250

January 19.—By HANNAFORD & SON (at Okehampton).

Broadwoodkelly, Devon.—Upcott Estate, 120 a. 2 r. 15 p.; f. 2,820

Winkleigh, Devon.—Garret's Tenement, 8 a. 1 r. 26 p., f. 325

January 21.—By DEBENHAM, TEWSON, & CO.

City of London.—Moor-lane, site of the Church of St. Bartholomew (together with the fabric), area 6,300 ft., f. 20,400

Aldgate.—No 28, f., r. 150*l.* 3,350

Kennington.—Smith-st., f.g.r. 20*l.*, reversion in 45½ yrs. 710

Smith-st., f.g.r. 12*l.* 10*s.*, reversion in 45½ yrs. £370

Warham-st., f.g.r. 20*l.*, reversion in 45½ yrs. 290

By DRIVERS (Holloway).

Holloway.—3 and 4, Andover-row, u.t. 50 yrs., g.r. 8*l.* 320

8, Bedford-ter., u.t. 54 yrs., g.r. 5*l.* 265

55, 57, and 59, Campbell-rd., u.t. 64 yrs., g.r. 15*l.* 350

Finsbury Park.—47, Lennox-rd., u.t. 63 yrs., g.r. 5*l.* 10*s.*, r. 34*l.* 305

By W. N. WILLOUGHBY.

Norwood.—9, Ulverstone-rd., u.t. 93½ yrs., g.r. 6*l.* 10*s.*, r. 35*l.* 345

By ORGILL, MARKS, & LAWRENCE (at Masons' Hall Tavern).

Shaftesbury Avenue.—The Shaftesbury p.-h., f., with goodwill 20,300

January 22.—By SALTER, REX, & CO.

Kentish Town.—Willes-rd., l.g.r. 12*l.*, u.t. 19½ yrs. 2, Willes-rd., u.t. 19½ yrs., g.r. 5*l.*, r. 55*l.* 160

6, Willes-rd., u.t. 19½ yrs., g.r. nil, r. 50*l.* 440

8 to 14 (even), Willes-rd., u.t. 19½ yrs., g.r. 8*l.*, r. 160*l.* 395

16, 18, and 22, Willes-rd., f., r. 140*l.* 1,430

26, Willes-rd., u.t. 19½ yrs., g.r. 4*l.*, r. 42*l.* 2,545

Willes-rd., l.g.r. 7*l.*, reversion in 19½ yrs. 345

4, Inkerman-rd., u.t. 22½ yrs., g.r. 1*l.*, r. 30*l.* 410

96, Chetwynd-rd., u.t. 67 yrs., g.r. 7*l.*, r. 48*l.* 100

265

525

By DANIEL WATNEY & SONS.

Vauxhall.—Albert Embankment, The White Lion p.-h., a part c.g.r. and part f.g.r. 120*l.*, reversion in 37 yrs. 3,550

By DOUGLAS YOUNG & CO.

City of London.—Fleet-st., &c., a freehold corner building site, area 550 ft. 10,150

Hoxton.—51 and 52, Herbert-st., and 1, Trinity-pl., u.t. 40½ yrs., g.r. 18*l.* 18*s.*, r. 110*l.* 1,100

Clapham.—Clarence-rd., f.g.r. 15*l.*, reversion in 33 yrs. 600

Wimbledon.—Queen's-rd., The Limes, f., r. 55*l.* 840

January 22.—By BALCH & BALCH (at Camden Town).

Kentish Town.—121, Leighton-rd., u.t. 39 yrs., g.r. 5*l.*, e.r. 36*l.* 370

January 23.—By CHADWICK & SONS.

Holborn.—6 and 7, Holborn-buildings, f. 3,110

By HERRING, SON, & DAW.

Clapham.—152, 152A, and 154, High-st., with range of stabling in rear, u.t. 14 yrs., g.r. 30*l.* 10*s.*, r. 200*l.* 1,425

16, North-rd., u.t. 38½ yrs., g.r. 8*l.* 460

Streatham.—Leigham-av., Gwynfain, e.r. 120*l.*; also i.g.r. 28*l.*, u.t. 45 and 47 yrs., g.r. 24*l.* 1,500

Leigham Court-rd., The Lodge, u.t. 64½ yrs., g.r. 15*l.* 1,120

By C. C. & T. MOORE.

Forest Gate.—14 and 16, Salisbury-rd., u.t. 76 yrs., g.r. 10*l.* 380

Barking, Essex.—51 to 59 (odd), Morley-rd., f. 720

Highbury.—53, Wyatt-rd., u.t. 68½ yrs., g.r. 5*l.* 290

Mile End.—126, 128, and 130, Skidmore-st., u.t. 29 yrs., g.r. 12*l.* 595

Pimlico.—169, Vauxhall Bridge-rd., u.t. 23 yrs., g.r. 8*l.* 500

By NEWBON EDWARDS, & SHEPHARD.

Clerkenwell.—171, Rosebery-av., u.t. 93 yrs., g.r. 7*l.* 225

Caledonian-rd.—28 and 29, Edward-sq., u.t. 38 yrs., g.r. 10*l.*, r. 76*l.* 635

Stoke Newington.—3, 5, 7, and 9, Prince George-rd., u.t. 91 yrs., g.r. 26*l.*, r. 136*l.* 1,410

Islington.—28, Sherborne-st., u.t. 41 yrs., g.r. 6*l.*, r. 40*l.* 350

By PRATT & MANSLAND.

Leytonstone.—Park Grove-rd., Newlyn, f. 240

By STIMSON & SONS.

Old Kent-rd.—Verney-rd., The Canal Potteries, area 35,000 ft., u.t. 52½ yrs., g.r. 235*l.* 4,200

Brixton.—48, Pulross-rd., u.t. 62½ yrs., g.r. 4*l.* 4*s.* 1, 5, and 7, Shannon-gr., u.t. 63½ yrs., g.r. 3*l.* 12*s.* 300

1,050

Bromley, Kent.—Canon-rd., 4 plots of land, f. 130

Bermondsey.—23, 24, and 25, Thorburn-sq., u.t. 40½ and 44½ yrs., g.r. 18*l.* 1,235

Hornsey.—25, Hillfield-av., u.t. 80½ yrs., g.r. 6*l.*, r. 45*l.* 490

Mitcham, Surrey.—7, Glebe-villas, u.t. 68 yrs., g.r. 9*l.* 315

By CHARLES VARLEY.

Canonbury.—4, Petherton-road, u.t. 47½ yrs., g.r. 10*l.* 10*s.*, r. 80*l.* 675

By T. WALKER & SONS (at York).

Easingwold, Yorks.—Driffield Farm and Cobb Farm, 183 a. 2 r. 37 p., f. 4,000

January 24.—By ELLIS & SON.

Sandgate, Kent.—90, 90A, and 92, High-st., area 5,000 ft., f., r. 205*l.* 3,650

By W. B. HALLETT.

Holloway.—410, Camden-rd., u.t. 40 yrs., g.r. 10*l.*, e.r. 80*l.* 730

Crouch Hill.—21, Ashley-rd., u.t. 73 yrs., g.r. 9*l.*, r. 70*l.* 760

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; yd. for yard.

NATIONAL FEDERATION OF BUILDING TRADE EMPLOYERS.—At the annual meeting of the National Federation of Building Trade Employers held in London on the 29th ult. it was resolved to take the opinion of the employers on the question of fixing a date for the simultaneous termination of all notices with reference to working rules with the operatives.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.		
Hard Stocks	1	11	6	per 1,000	alongside, in river.
Rough Stocks and Grizzles	1	9	6	,,	,, ,,
Facing Stocks	2	12	0	,,	,, ,,
Shippers	2	5	0	,,	,, ,,
Flettons	1	8	0	,,	at railway depôt.
Red Wire Cuts ..	1	12	0	,,	,, ,,
Best Fareham Red	3	12	0	,,	,, ,,
Best Red Pressed Ruabon Facing.	5	5	0	,,	,, ,,
Best Blue Pressed Staffordshire ..	4	6	6	per 1,000	at railway depot.
Do., Bullnose	4	10	0	,,	,, ,,
Best Stourbridge Fire Bricks	4	5	6	,,	,, ,,
GLAZED BRICKS					
Best White and Ivory Glazed Stretchers.....	13	0	0	,,	,, ,,
Headers	12	0	0	,,	,, ,,
Quoins, Bullnose, and Flats	17	0	0	,,	,, ,,
Double Stretchers	19	0	0	,,	,, ,,
Double Headers..	16	0	0	,,	,, ,,
One Side and two Ends	19	0	0	,,	,, ,,
Two Sides and one End	20	0	0	,,	,, ,,
Splays, Chamfered, Squints	20	0	0	,,	,, ,,
Best Dipped Salt Glazed Stretchers and Headers ..	12	0	0	,,	,, ,,
Quoins, Bullnose, and Flats	14	0	0	,,	,, ,,
Double Stretchers	15	0	0	,,	,, ,,
Double Headers..	14	0	0	,,	,, ,,
One Side and two Ends	15	0	0	,,	,, ,,
Two Sides and one End	15	0	0	,,	,, ,,
Splays, Chamfered, Squints.....	14	0	0	,,	,, ,,
Seconds Quality White and Dipped Salt Glazed	2	0	0	,,	less than best.

	£	s.	d.	
Thames and Pit Sand		7	3	per yard, delivered.
Thames Ballast		6	0	,, ,,
Best Portland Cement		32	0	per ton, delivered.
Best Ground Blue Lias Lime..		25	0	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime..... 11*s.* 0*d.* per yard, delivered.
Stourbridge Fire-clay in sacks, 30*s.* 6*d.* per ton at rly. dpt.

STONE.

	s.	d.	
Ancaster in blocks	1	11	per ft. cube, deld. rly. depôt.
Bath ,, ...	1	7	,, ,,
Farleigh Down Bath ..	1	8	,, ,,
Beer in blocks	1	6½	,, ,,
Grimshill ,, ...	1	10	,, ,,
Brown Portland in blocks	2	2	,, ,,
Darley Dale in blocks..	2	4	,, ,,
Red Corsehill ,,	2	5	,, ,,
Red Mansfield ,,	2	4	,, ,,
Hard York in blocks ..	2	10	,, ,,

			s.	d.	
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)			2	3	per ft. super. at rly. depôt.
,, ,,	6 in. Rubbed Ditto..		3	0	,, ,,
,, ,,	5 in. sawn both sides slabs (random sizes)		1	3	,, ,,
,, ,,	2 in. self-faced Ditto		0	9½	,, ,,
Hopton Wood (Hard Bed) in blocks			2		3 per ft. cube, deld. rly. depôt.
,, ,, ,,	6 in. sawn both sides landings		2		7 per ft super. deld. rly. depôt.
,, ,,	3 in. do.		1		2½ ,, ,,

SLATES.

in.	in.	£	s.	d.	
20 × 10	best blue Bangor..	11	15	0	per 1000 of 1200 at rly depôt.
,,	best seconds ,,	11	5	0	,, ,,
16 × 8	best ,,	6	12	0	,, ,,
20 × 10	best blue Portmadoc	11	5	0	,, ,,
16 × 8	best blue Portmadoc	6	0	0	,, ,,
20 × 10	best Eureka unfading green....	10	2	6	,, ,,
16 × 8	,, ,,	7	5	0	,, ,,
20 × 10	permanent green	10	5	0	,, ,,
16 × 8	,, ,,	5	17	6	,, ,,

TILES.

	s.	d.	
Best plain red roofing tiles..	41	6	per 1,000, at rly. depôt.
Hip and valley tiles....	3	7	per doz. ,, ,,
Best Broseley tiles	48	6	per 1,000 ,, ,,
Hip and valley tiles....	4	0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57	6	per 1,000 ,, ,,
Do. ornamental Do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	9	,, ,, ,,
Best Red or Mottled Staffordshire Do. (Peakes) .	50	9	per 1,000 ,, ,,
Hip tiles	4	1	per doz. ,, ,,
Valley tiles.....	3	8	,, ,, ,,

[See also page 123.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Fountain	Committee of Provost Scott Fund	Not stated	Feb. 15
*Laying-out Pleasure Ground	Aldershot U.D.C.	20*l.*, 10*l.* and 5*l.*	Mar. 1
*Proposed Public Offices	do.	100*l.*, 75*l.* and 50*l.*	Mar. 29
*New Town Hall	Harrogate Corporation	150*l.*, 100*l.*, and 75*l.*	May 14
Bridge, Stakeford, Northumberland		Not stated	No date

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., Supplied by	Tenders to be delivered
*Supply of Road Materials to Royal Parks	Commissioners of H.M. Works, &c	H.M. Office of Works, Storey's Gate, S.W.	Feb. 3
Villas, Hessle, near Hull	Mr. W. Peacock	A. T. Martindale, Architect, 66, Wellington-road, Bridlington	Feb. 4
Steel Pipes (200 tons)	Manchester Corporation	G. H. Hill & Sons, Civil Engineers, 3, Victoria-st., Westminster	do.
Additions to Fechney Schools, Perth		David Stuart, Architect, Perth	do.
House, Church-lane, Pudsey, near Leeds	Mr. J. H. Dixon	Buttery & Birds, Architects, Queen-street, Morley	do.
Alterations to Premises, 13, Chapel-st., Bridlington	Leyton (Essex) U.D.C.	J. Earnshaw, Architect, Bridlington	do.
Road Materials, &c.	Hackney Borough Council	W. Dawson, Civil Engineer, Town Hall, Leyton	do.
*Hardwood Paving	Mirfield (Yorks) U.D.C.	Borough Engineer, Town Hall, Hackney	do.
Widening Road, Snakehill	Mallow (Ireland) R.D.C.	F. H. Hare, Civil Engineer, Mirfield	Feb. 5
Cottages	Manchester Corporation	M. Regan, Workhouse, Mallow	do.
Greenhouse, &c., Monsall Hospital	New Maldon and Coombe U.D.C	City Surveyor, Town Hall, Manchester	do.
Public Offices, Fire Station, &c.	Norwich Corporation	C. T. Lewis, 7, Market-place, New Maldon	do.
Picture Gallery at Castle Museum	Southend Corporation	A. E. Collins, Civil Engineer, Guildhall, Norwich	do.
Pier Works, &c.		A. Fidler, Civil Engineer, Southend	do.
Road Works, Grays, Essex	Barnsley Corporation	G. W. Cobham, Surveyor, 1, Edwin-road, Gravesend	do.
Church, Tonyrefail, Wales	Wellingborough U.D.C.	E. M. Bruce Vaughan, Architect, Cardiff	do.
Steel Girder Bridges, Deepcar and Soughley	Hull Corporation	Borough Surveyor, Town Hall, Barnsley	do.
Paving Works, High-street	Mr. W. Hathaway	E. Sharman, Surveyor, Market-square, Wellingborough	do.
Police Station, Alfred Gelder-street	Hetton (Durham) U.D.C.	J. H. Hirst, City Architect, Town Hall, Hull	do.
Shop, near Rawmarsh, Yorks	Mr. G. Ferguson	J. Platts, Architect, Old Bank Buildings, Rotherham	do.
Sewers, &c.	Leith Town Council	J. Harding, Surveyor, Hetton-le-Hole	do.
Additions to Langton House, East Molesey	Fulham Council	D. G. Andrew, Architect, Bridge-road, East Molesey	do.
Sewers, &c., Ann-street	Mostag School Board	Borough Surveyor, Town Hall, Leith	do.
*Making-up and Paving Roads	Wandsworth & Clapham Union	Borough Surveyor, Town Hall, Fulham	do.
Additions to Schools, Nantyffyllon, Wales		E. W. Burnett & Sons, Architects, Tondu, near Bridgend	Feb. 6
*Covered Way and other Works, Tooting Home	East Retford R.D.C.	C. A. Sharp, Architect, 11, Old Queen-street, S.W.	do
Church, Ordsall, Retford	Cardiff Corporation	C. Hodgson Fowler, Architect, Durham	do.
Granite Road Metal, &c.	Radcliffe (Lancs) U.D.C.	T. Henry, Surveyor, Retford	do.
Additions to Engine House, &c., Cogan Pumping Stn	Meath R.D.C.	C. H. Priestley, Engineer, Town Hall, Cardiff	do.
Chimney, Dale-street		W. L. Rothwell, Engineer, Radcliffe	do.
Ten Cottages, Drogheda, Ireland		L. Turley, Civil Engineer, Drogheda	do.
Alterations to Chapel, Blaenau Gwent, Wales	Stockport Corporation	A. Jones, Rosebery-street, Abertillery	Feb. 7
House, Crumlin, Mon.	do.	R. L. Roberts, Architect, Abercarn	do.
Eighteen Houses, Treorky, Wales	Sheffield Corporation	M. Falcon, 33, Bute-street, Treorky	do.
Road Works	Hertfordshire County Council	J. Atkinson, Civil Engineer, St. Peter's Gate, Stockport	do.
Surveyor's Materials, &c.	Leicester Corporation	do.	do.
Shops, Angel and King-streets	Mr. Richard Rigg	Gibbs & Flockton, Architects, 15, St James'-row, Sheffield	do.
Granite and Slag	do.	U. A. Smith, County Surveyor, 41, Parliament-street, S.W.	do.
Public Baths, West Humberstone	Knutsford U.D.C.	A. H. Hind, Architect, 3, Grey Friars, Leicester	do.
Additions to Crown Hotel, Bowness		S. Shaw, Architect, Kendal	do.
Villas, Bowness	Accrington Co-op. Society, Ltd.	do.	do.
Sewers, &c., St. John's-road	Midland Railway Company	W. J. Downes, Surveyor, Council Offices, Knutsford	do.
Twelve Houses, Aberaman	Newport (Mon.) Town Council	G. A. Treharne, Architect, 18, Canon-street, Aberdare	do.
Villa, Hirwain, near Aberdare	Rugby R.D.C.	do.	do.
Shops, Stores, &c.	Donegal Guardians	Haywood & Harrison, Archts., Post Office Chambers, Accrington	do.
*Engine Shed, &c., Stockingford	Shrewsbury Standing Jnt. Comm	Company's Architect, Cavendish House, Derby	do.
Car Sheds, &c.	Isle of Ely County Council	Borough Engineer, Town Hall, Newport	Feb. 8
Granite Road Metal	Ballymena Guardians	J. W. Pendred, Rugby	do.
Additions to Infirmary	Jarrow Town Council	D. C. Pearson, Workhouse, Donegal	do.
Police Offices		A. T. Davis, County Surveyor, Shire Hall, Shrewsbury	do.
Road Metal, &c.	Kingston-on-Thames Guardians	H. F. Simpson, County Surveyor, Wisbeach	do.
House, Killyfast, Toome, Ireland	Lathom and Burscough U.D.C	C. Johnston, Workhouse, Ballymena	do.
Road Works, &c. Russell-street	St. Marylebone Council	J. Petree, Borough Surveyor, Jarrow	Feb. 10
Church, Wellington-street, Stockton	do.	T. W. T. Richardson, Architect, 57, High-street, Stockton	do.
Road at Workhouse	Whitehaven Guardians	J. Edgell, Union Offices, Kingston	do.
Sewerage Works, Ormskirk, Lancs.	Bromley U.D.C.	J. T. Wood, Civil Engineer, 3, Cook-street, Liverpool	do.
*Carting Slops and Sweepings	do.	Council's Engineer, Town Hall	do.
*Watering Streets and Roads	Surrey County Council	do.	do.
Cottage, Porthcawl, Wales	Willesden District Council	S. H. Stockwood, Bridgend	do.
Infirmary	do.	G. Boyd, Civil Engineer, 33, Queen-street, Whitehaven	do.
*Widening Park-road	West Ham Council	Council's Surveyor, Bromley, Kent	Feb. 11
*Road Making and Paving Works	do.	do.	do.
*New Technical Institute, Wimbledon	Battersea Borough Council	G. H. Fox, Architect, 9, John-street, Adelphi, W.C.	do.
*Annual Contracts	Watford Gas Company	Council's Engineer, Dyne-road, Kilburn, N.W.	do.
*Guernsey Broken Granite	Hammersmith Council	do	do.
*Tenders for Supplies, &c.	Woolwich Council	Borough Engineer, Town Hall, Stratford, E.	do.
*Tenement Houses, Stratford	Bristol Docks Committee	Borough Engineer, Town Hall, West Ham, E.	do.
*Annual Contracts	Holborn Union	Borough Surveyor, Municipal Buildings, Lavender Hill, S.W.	Feb. 12
Gasholder Tank, &c.	Long Sutton (Lincs.) U.D.C.	H. E. Jones & Sons, Engineers, Palace Chambers, Westminster	do.
*Annual Contracts	Commissioners of H.M. Works	Borough Surveyor, Town Hall, Hammersmith	do.
*Annual Contracts	Belper, R.D.C.	Borough Engineer, Maxey-road, Plumstead	Feb. 17
*New Docks and Works, Avonmouth	R. Gerrish	Engineer's Office, Underfall Yard, Bristol	Feb. 13
*Supplying Steam Boilers and Engineering Works	Belfast Corporation	J. Buley, Suffolk House, Laurence Pountney Hill, E.C.	Feb. 18
Broken Granite, &c. (900 tons)	Hackney Union	T. S. Mossop, Council Offices, Long Sutton	do
*Enlargement of Croydon Crown Post Office	Fulham Guardians	H.M. Office of Works, Storey's Gate, S.W.	Feb. 21
Road Metal, &c.	Middlesex County Council	R. C. Cordon, Surveyor, Duffield, near Derby	Feb. 22
*Residence, Salisbury	do.	F. Bath, Architect, Salisbury	do
Technical Institute	Messrs. A. Sanderson & Co.	S. Stevenson, Architect, 83, Royal Avenue, Belfast	Feb. 25
*Casual Wards and other buildings, Hackney Wick	Messrs. J. Leyman & Co., Ltd.	Clerk's Offices, Homerton, N.E.	do
*Chimney Shaft	Manchester Corporation	F. H. Medhurst, Engineer, 13, Victoria-street, S.W.	do
*Cartage of Road Materials	Messrs. J. J. and A. S. Ward	County Engineer, Middlesex, Guildhall, Westminster, S.W.	Mar. 4
*Supply of Road Materials		do.	do
Warehouse, Humber Bank, Hull	Mr. N. J. Hall	Freeman, Son & Jaskell, Architects, 11, Carr-lane, Hull	No date
Offices, Stores, &c., St. Andrew's Dock, Hull		do	do.
Two Houses, London-road, Newcastle-under-Lyme	Pendlebury U.D.C.	W. Campbell, Architect, 2, Bagnall-street, Hanley	do.
Setts, &c.		Borough Surveyor, Town Hall, Manchester	do.
Street Works, Ratcliffe Gate, Mansfield		Vallance & Westwick, Surveyors, Mansfield	do.
Works at House, Sadberge, near Darlington		J. Allen, Borough-road, Darlington	do.
Villa, Alexandra-road, Penzance		O. Caldwell, Architect, Penzance	do.
Cottage, Brook-street, Carlisle		W. Pogson, Architect, Devonshire-street, Carlisle	do.
Two Villas, Sherwood Rise, Nottingham		Collyer & Slater, Architect, 8, Bridlesmith Gate, Nottingham	do.
Public Baths, Victoria Park, Swinton, nr. Manchester		T. J. Bushell, Architect, 18, John Talton-street, Manchester	do.
Drain Pipes, &c., Rawcliffe		R. W. Fearnley, Ackworth, near Pontefract	do.

[*See also next page.*

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
Land Surveyor and Valuer	Middlesex County Council ...	800*l.* ...	Feb. 7

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. iv. Contracts, pp. iv. vi. viii. x. xii. & xxiii. Public Appointments, xviii & xxiii.

PRICES CURRENT (*Continued*).

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13 10 0	15 10 0
Deals: best 3 by 9	13 0 0	14 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	10 0 0	11 0 0
Battens: best 2½ by 6 and 3 by 6 ..	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	„ „ „
2 in. by 4 in. and 2 in. by 6 in. .	8 10 0	9 10 0
„ „ by 4½ in. and 2 in. by 5 in. ..	8 0 0	9 0 0
Foreign Sawn Boards— 1 in. by 12 in. by 11 in.	0 10 0	more than battens.
¾ in.	1 0 0	„
Fir timber: Best middling Danzig or Memel (average specification)	At per load of 50 ft. 4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Swedish balks	2 15 0	3 0 0
Pitch-pine timber (50 ft.)	3 0 0	3 10 0

JOINERS' WOOD.

	At per standard.	
White Sea: First yellow deals, 3 in. by 11 in.	22 0 0	23 0 0
3 in. by 9 in.	20 0 0	21 0 0
Battens, 2½ in. and 3 in. by 7 in.	15 0 0	16 0 0
Second yellow deals, 3 in. by 11 in.	17 0 0	18 0 0
„ „ 3 in. by 9 in.	15 10 0	16 10 0
Battens, 2½ in. and 3 in. by 7 in.	12 0 0	13 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	12 10 0	13 10 0
Battens, 2½ in. and 3 in. by 7 in.	10 10 0	11 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	19 0 0	20 0 0
Do. 3 in. by 9 in.	16 0 0	17 0 0
Battens	12 10 0	13 0 0
Second yellow deals, 3 in. by 11 in.	14 0 0	15 0 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens	11 0 0	12 0 0
Third yellow deals, 3 in. by 11 in.	11 10 0	12 10 0
Do. 3 in. by 9 in.	11 0 0	12 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg:— First white deals, 3 in. by 11 in.	13 10 0	14 10 0
„ „ „ 3 in. by 9 in.	12 10 0	13 0 0
Battens	10 10 0	11 10 0
Second white deals 3 in. by 11 in.	12 10 0	13 10 0
„ „ „ 3 in. by 9 in.	12 0 0	12 10 0
„ „ „ battens	9 10 0	10 10 0
Pitch-pine: deals	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes..	32 0 0	33 10 0
Broads (12 in. and up)	2 0 0	more.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube..	0 3 6	0 4 6
Danzig and Stettin Oak Logs— Large, per ft. cube	0 2 6	0 3 0
Small „ „	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube ..	0 3 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 7
¾ in. do. do.	0 0 7	- - -
Dry Mahogany— Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	16 0 0	20 0 0
American Whitewood Planks— Per ft. cube	0 3 0	0 3 6

Prepared Flooring— Per square.

1 in. by 7 in. yellow, planed and shot	0 13 0	0 16 6
1 in. by 7 in. yellow, planed and matched	0 13 6	0 17 6
1¼ in. by 7 in. yellow, planed and matched	0 15 0	1 0 0
6 in. at 6d. per square less than 7 in.		
1 in. by 7 in. white, planed and shot	0 11 0	0 12 6
1 in. by 7 in. white, planed and matched	0 11 6	0 13 6
1¼ in. by 7 in. white, planed and matched	0 13 6	0 15 6
6 in. at 6d. per square less than 7 in.		

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0	7 5 0
Compound Girders „ „	8 0 0	9 0 0
Angles, Tees and Channels, ordinary sections	8 2 6	9 2 6
Flitch Plates	8 10 0	0 0 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 0 0	8 0 0

PRICES CURRENT (*Continued*)

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON— Common Bars	8 0 0	8 10 0
Staffordshire Crown Bars, good merchant quality	8 10 0	9 0 0
Staffordshire "Marked Bars" ..	10 10 0	- -
Mild Steel Bars	9 0 0	9 12 0
Hoop Iron, basis price	9 5 0	9 15 0
„ „ galvanised	16 0 0	- -
(* And upwards, according to size and gauge.)		
Sheet Iron, Black.— Ordinary sizes to 20 g.	10 0 0	- - -
„ „ to 24 g.	11 0 0	- - -
„ „ to 26 g.	12 10 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality.— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12 10 0	- - -
„ „ 22 g. and 24 g.	13 0 0	- - -
„ „ 26 g.	14 0 0	- - -
Sheet Iron, Galvanised, flat, best quality:— Ordinary sizes to 20 g.	16 10 0	- - -
„ „ 22 g. and 24 g.	17 0 0	- - -
„ „ 26 g.	18 10 0	- - -
Galvanised Corrugated Sheets.— Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 10 0	- - -
„ „ 22 g. and 24 g.	13 0 0	- - -
„ „ 26 g.	14 0 0	- - -
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker ..	12 5 0	- - -
„ „ 22 g. and 24 g.	13 5 0	- - -
„ „ 26 g.	14 5 0	- - -
Cut nails, 3 in. to 6 in. ..... (Under 3 in. usual trade extras.)	9 10 0	10 0 0

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	13 10 0	- - -
Pipe in coils	14 0 0	- - -
Soil Pipe	16 10 0	- - -
ZINC—Sheet— Vieille Montagne ..... ton	24 10 0	- - -
Silesian	24 0 0	- - -
COPPER— Strong Sheet ..... per lb.	0 1 0	- - -
Thin ..... „	0 1 1½	- - -
Copper nails ..... „	0 1 1½	- - -
BRASS— Strong Sheet ..... „	0 0 11	- - -
Thin „ ..... „	0 1 1	- - -
TIN—English Ingots ..... „	0 1 3	- - -
SOLDER—Plumbers' ..... „	0 0 6½	- - -
Tinmen's „	0 0 5	- - -
Blowpipe „	0 0 0	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft. delivered.
„ fourths	2¾d. „ „
21 oz. thirds	3¼d. „ „
„ fourths	3½d. „ „
26 oz. thirds	4¼d. „ „
„ fourths	4½d. „ „
32 oz. thirds	5¼d. „ „
„ fourths	5½d. „ „
Fluted sheet, 15 oz.	3¼d. „ „
„ 21 „	4¼d. „ „
⅛ Hartley's Rolled Plate	9½d. „ „
¼ „ „ „	9½d. „ „
⅛ „ „ „	2½d. „ „

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 2 8
„ „ „ in barrels	„	0 2 9
„ „ „ in drums	„	0 2 11
Boiled „ „ in pipes	„	0 2 10
„ „ „ in barrels	„	0 2 11
„ „ „ in drums	„	0 3 1
Turpentine, in barrels	„	0 2 6
„ in drums	„	0 2 8
Genuine Ground English White Lead	per ton	21 0 0
Red Lead, Dry	„	21 0 0
Best Linseed Oil Putty	per cwt.	0 2 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Elastic Copal Varnish for outside work ..	0 16 6
Best Elastic Copal Varnish for outside work ..	1 0 0
Best Elastic Carriage Varnish for outside work	0 16 0
Best Hard Oak Varnish for inside work	0 10 6
Best Extra Hard Church Oak Varnish for inside work	0 10 6
Fine Hard Copal Varnish for inside work	0 16 0
Best Hard Copal Varnish for inside work	1 0 0
Best Hard Carriage Varnish for inside work ...	0 16 0
Extra Pale Paper Varnish	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
Best French and Brush Polish	0 10 0

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BROADSTAIRS.—For alterations and additions to Bleak House, for Mr. Thomas Barry. Mr. William A. Burr, architect, 76, Chancery-lane, W.C.:—

	Victoria Stone.	Terra-cotta.
Denne	£3,978	—
Whiteley, Ltd.	3,850	£3,736
May	3,816	3,816
Stevens Bros.	3,770	3,780
Martin	3,640	3,625
Brown	3,500	3,412
Paramor	3,483	—
Gann & Co., Whitstable*	2,945	2,910

BUSBY (N.B.). — For the execution of sewerage works, &c., for the District Committee of the Middle Ward of the County of Lanark. Mr. W. L. Douglass, C.E., 3, Clydesdale-street, Hamilton. Quantities by Engineer:—

A. Robertson	£4,125	13	8
McKerracher & Son	3,440	13	7
Shanks & McEwan ..	3,396	0	11
T. Christie ..	3,390	0	0
A. Duncan ..	3,311	15	8
Harvie & Co.	3,192	1	5
Brebner & Co.	3,175	9	3
Henderson & Duncan	3,144	12	5
Stirling & Kinnibargh	£3,124	9	4
D. & J. Stratton	2,991	4	11
Brown Bros.	3,061	11	1
Craik & Tuckwell	2,960	0	3
J. Pollock	2,738	6	10
J. Johnstone, Bellshill* ..	2,500	16	1

CORK.—For the re-erection of mills, John-street, for Messrs. Eustace & Co. Mr. A. Hill, architect, George's-street, Cork:—

J. Lynch	£5,900	P. Murphy	£4,455
D. Hagarty	4,900	T. Delany	4,380
D. O'Callaghan	4,847	E. & P. O'Flynn* ..	4,380

CROYDON.—For highway improvements, Beddington, Couladon, &c., for the Rural District Council. Mr. R. M. Chart, surveyor, Council's Offices, Town Hall, Croydon:—

W. Pearce	£10,525	W. Shepherd	£7,010
Fry Bros.	8,170	Streeter Bros.	6,697
Mowlem & Co.	8,028	Free & Sons	6,356
W. Langridge	7,380	East Acton Tar Paving Co.	6,329
Lawrence & Thacker	7,348	E. Iles	6,063
W. H. Wheeler	7,233		

HOLMES CHAPEL.—For alterations and additions to the Hermitage, Holmes Chapel. Messrs. Maxwell & Tuke, architects, &c., 41, Corporation-street, Manchester:—

Beckett & Co., Hartford, Cheshire* £2,250

HOLYHEAD.—For the erection of a school, Kingsland, for the School Board of Holyhead. Mr. William Williams, architect, 1, Park-terrace, Holyhead. Quantities by same:—

Williams & Son	£1,450
E., R., & J. Owen, London House Holyhead*	1,074

[*See also next page.*

KING'S LYNN.—For work at High School for Girls, King's Lynn, Norfolk. Mr. Herbert J. Green, architect and surveyor, 31, Castle Meadow, Norwich :—

H. W. Barnes	£3,862 7 0	A. F. Foreman	£3 358 5 0
W. H. Brown	3,757 16 0	R. Dye	3,346 0 0
P. Banyard	3,473 19 7	Bardell Bros.	3,257 0 0
J. W. Collins	3,453 0 0	R. Shanks	3 186 0 0
J. Medwell	3,440 1 10	J. Cracknell, Peterborough†	3,085 7 0
Renaut Bros.	3,383 0 0		
Tash, Langley, & Co.	3,359 10 9		

† Accepted conditionally.

LONDON.—For alterations to premises Nos. 145 and 147, North End, Croydon (Croydon Guardian Offices), first portion. Mr. F. Windsor, architect, Croydon :—

Huntley	£145 0 0	Card*	£132 10 0
Hubbard	135 0 0	Shirley	122 12 6

LONDON.—For alterations, additions, and repairs to 304, High Holborn, for Messrs. Godwin & Son. Mr. William A. Burr, architect, 76, Chancery-lane, W.C. :—

	For alterations.	For repairs.
Langham	£410	£81
Larke & Son	344	64
Hocking*	275	51

MITCHAM.—For the enlargement of the Lower Mitcham Schools, for the School Board. Mr. H. Carter Pegg, architect, Thornton Heath :—

C. Sayers	£3,010 14 9	Smith & Sons	£2,742 0 0
E. J. Saunders	2,980 0 0	Stewart & Sons	2,698 0 0
Hobbs Bros.	2,836 0 0	E. J. Burnand, Wallington*	2,605 0 0
W. H. Parslow	2,797 8 7		

MORPETH.—For the erection of a hospital, Low Black Close, for the Ashington Urban District Council. Mr. A. Wood, architect, Market-place, Ashington :—

Braithwaite	£1,084	Gordon Bros., Stakeford, Morpeth*	£995

NEWBIGGIN-BY-SEA.—For the erection of sixteen cottages, for Newbiggin Co-operative Society, Ltd. Messrs. Boolds & Hardy, architects, Morpeth. Quantities by architects :—

Gibson Bros., Newbiggin*	£2,375

[Eight other tenders.]

PAIGNTON.—For alterations to warehouse and shops for Messrs. Osborne & Son. Messrs. Bridgman & Bridgman, architects, Torquay and Paignton. Quantities by Mr. Vincent Cattermole Brown, Paignton :—

G. Webber	£620	H. Webber & Sons	£539
W. H. Lethbridge	599	R. Harris*	424
E. Westlake	579		

SIDCUP (Kent).—For additions, redrainage, and alterations to The Hollies House, to adapt same as the administrative block of the new children's homes, for the Greenwich Union Guardians. Messrs. Thomas Dinwiddy and T. Norman Dinwiddy, architects. Quantities by Mr. Louis Jacob :—

E. Mills	£6,146	Staines & Son	£4,644
G. Jackson	5,066	J. Lonsdale	4,394
H. L. Holloway	4,864	W. Mills	4,277
T. D. Leng	4,825	W. Nash	4,087
B. J. White	4,677	T. Rowbotham*	3,677

PRESTWICH.—For building a house for Mr. Henry Baker, Guest-road, Prestwich. Messrs. Maxwell & Tuke, architects, &c., 41, Corporation-street, Manchester :—

Leach & Sons, Prestwich*	£997

WEDNESBURY.—For the execution of paving works, High-street, Market-place, &c., for the Corporation. Mr. E. Martin Scott, Borough Engineer, Town Hall, Wednesbury. Quantities by the Borough Engineer :—

Contract No. 1.

T. Woodhouse	£1,550 0 0
J. Mackay	1,392 14 7
Patent Victoria Stone Co., Ltd.	1,346 2 7
F. J. Smith	1,318 0 0
J. White, jun.	1,255 17 10
Currall Lewis & Martin	1,197 11 1
E. Boore	1,110 17 0
W. Westwood	1,075 10 8
A. Cooper	1,028 9 6
Empire Indurated Stone Co.	1,011 2 4
H. Weldon	943 10 7
G. Trentham, Handsworth*	942 4 8

Contract No. 2

Patent Victoria Stone Co., Ltd.	£1,109 7 6
T. Woodhouse	1,000 0 0
Empire Indurated Stone Co., Ltd.	879 12 3
The Hard York Non-Slip Stone Co., Ltd.	830 0 0
E. Boore	827 9 6
H. Weldon	821 4 6
Patent Indurated Stone Co., Ltd.	803 3 9
Ellis & Sons, Ltd.	792 8 9
Currall Lewis & Martin	783 7 3
A. Cooper	770 12 9
G. Trentham*	713 0 0
John Mackay	701 2 9
Watson & Co.	674 2 0
Abell & Cammall	661 5 0
John White, Jun.	599 6 3

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 15s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 18s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office, 15s. per annum (52 numbers) or 4s. 3d. per quarter (13 numbers), can ensure receiving "The Builder," by *Friday Morning's Post.*

THE BATH STONE FIRMS, Ltd.
BATH.
FOR ALL THE PROVED KINDS OF BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
The Ham Hill and Doulting Stone Co.
(incorporating the Ham Hill Stone Co. and C. Trask & Son The Doulting Stone Co.)
Chief Office :—Norton, Stoke-under-Ham, Somerset.
London Agent :—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO.'S, Ltd.,
"INK-PHOTO" PROCESS,
4 & 5, East Harding-street,
Fetter Lane, E.C.

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch. [Telephone No. 424 Westminster.
METCHIM & SON { 5, PRINCES STREET, ST. GEORGE'S, WESTMINSTER
"QUANTITY SURVEYORS' DIARY AND TABLES," For 1902, price 6d. post 7d. In leather 1/- Post 1/1.

JOINERY
Of every description and in any kind of Wood.
CHAS. E. ORFEUR,
COLNE BANK WORKS,
COLCHESTER.
Telephone: 0135. Telegrams: "Orfeur, Colchester."

ASPHALTE
For Horizontal & Vertical Damp Courses.
For Flat Roofs, Basements, & other Floors.
Special attention is given to the above by
THE
French Asphalte Co.
Contractors to
H.M. Office of Works, The School Board for London, &c.
For estimates, quotations, and all information, apply at the Offices of the Company,
5, LAURENCE POUNTNEY HILL,
CANNON STREET, E.C.

B. NOWELL & CO.
STONE MERCHANTS & CONTRACTORS.
Chief Office.—*Warwick Road, KENSINGTON.*
Norway, Guernsey, and Leicestershire Granite, Kerb, Pitching, and Yorkshire Stone.
ESTIMATES GIVEN FOR EVERY DESCRIPTION OF ROAD MAKING.

J. J. ETRIDGE, Jr.
SLATE MERCHANT,
SLATER and TILER.
Penrhyn - Bangor,
Oakeley - Portmadoc,
And every other description of Slates, except American, Ready for immediate delivery to any Railway Station.
PLASTERERS' LATHS
(HAND-MADE)
ALWAYS IN STOCK.
Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

TWELVE GOLD AND SILVER MEDALS AWARDED.
COPPER AND ZINC ROOFING.
F. BRABY & CO.

LONDON.	LIVERPOOL.	GLASGOW.	BRISTOL.
352 to 364, Euston-rd., N.W.	6 & 8, Hatton Garden	47 & 49, St. Enoch-square.	Ashton Gate Works, Coronation-rd

VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.
NO SOLDER. NO EXTERNAL FASTENINGS.
Particulars on Application. Chief Offices: Fitzroy Works, EUSTON ROAD, LONDON, N.W.